POPULAR Computing WEEKLY

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Vol 3 No 40

Oric sues Prism

TROUBLED micro manufacturer Oric Products International has served a writ against its distributor, Prism, for £4m damages

Oric claims Prism has broken the contract between the two companies "Prism was to become Oric's primary distributor, but Prism failed to meet the obligations of that agreement. The £4m refers to loss of sales suffered by Oric," said an Oric spokesman.

Prism will be responding to the writ. "We utterly refute everything that Oric are saying and our solicitor has already filed a response," said Bob Denton, Prism's group managing director

Bob Denton of Prism

"One problem with Oric has been the price cutting of the Atmos in stores It was selling at £99 in Green's at a time when Oric's price to us was £115."

This is the second writ that Oric has served in the last two months. In August, they filed a countersuit against KMP, its advertising agency, after KMP sued for £200,000 for non-payment of debts Oric's countersuit was thrown out of court

Four million pounds is reported also to be the estimated amount of Oric's total debts at present to creditors

Terry Shurwood, Oric's sales manager, last week denied reports that Oric had been refinanced.

continued on page 5 ▶

US games invasion continues

MORE American software is on its way to Britain for Christmas, this time from a new company, Ariolasoft

Set up as a sister company to Arista Records and Ariola, it will be headed by Ashley Gray and Frank Brunger, formerly of CBS

Ashley Gray

So far Ariolasoft has reached agreement with two of the biggest and fastest-growing software companies — Electronic Arts and Broderbund — to market their titles in the UK and Europe.

"At first we will be working on repackaging the titles and putting them on cassette, so they will first be available for the Commodore 64," explained Ashley Gray "Where feasible, we will later be converting to the Spectrum, and eventually looking at the MSX machines However, no firm conversion schedules have yet been fixed."

Nor has the order in which the games will appear, but Ashley said, "We will not be bringing them all out at once, as there are 60 titles in total, but our target launch date is set for early November, in order to have the first titles available in volume for Christmas.

"Prices for the range aren't fixed yet, but they will be at the upper end of the price spectrum, in line with the sort of prices US Gold, for instance, are doing"

In the long term, Ariolasoft plans to gain licences from other US companies, and, in turn, market its own British titles in the States

● Ariolasoft will not, however, be the only company marketing Broderbund games in this country Software Projects is

continued on page 5 ▶



Broderbund's Karateka

New micro for Sinclair?

IT now seems possible that Sinclair will launch a new low-cost home computer next year

Despite strong rumours that Sinclair is planning an expanded Spectrum machine with built-in microdrives and a proper keyboard, the new games computer is more likely to be 68008-based cut-down version of the QL without microdrives but with 128K Ram, sprites and a cassette port.

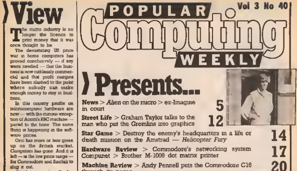
Sinclair has publically committed itself to the 68000 chip series as "the chip architecture we have chosen for the next decade"

Nigel Searle, the company's managing director, last week denied any plans to launch an

continued on page 5 ▶


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Vol 3 No 40



) View

The micro industry is no longer the licence to print money that it was once thought to be

The devastating US price war in home computers has proved conclusively — if any were needed — that the business is now ruthlessly commercial and that profit margins have been slashed to the point where nobody can make enough money to stay in business.

In this country profits on microcomputer hardware are now — with the curious exception of Acorn's BBC machine — pared to the bone. The same thing is happening in the software prices.

Oric has more or less given up on the British market. Camputers has gone. And it is left — is the low price range — for Commodore and Sinclair to slug it out.

Can the companies afford to carry-on chopping away at each other like this?

The answer is probably no. As just one indication of how much the price-war in the UK is beginning to hurt Sinclair last week announced disappointing profits for the year ending in March.

The most serious implication of the price-war is the uncertainty it generates in people's minds about the long term future of many of the micro companies.

Those who are most uncertain and nervy now are precisely those who were the keenest supporters 12 months ago — the banks and the venture capital companies.

Where before the word 'micro' acted as a magic key to release a deluge of support it now has the reverse effect.

If you are thinking of setting up a new little venture I wouldn't mention to your bank manager that it has any connection with micros or new technology, if I were you.

) Presents...

) Futures...

A challenging word game for the Amstrad ... auto-run your programs on the QL ... and a statistics program on the BBC

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How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles and any accompanying programs should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here — so please do not be tempted. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Computer Trade Association Magazine of the Year

Alien–game of the film

ARGUS Press Software has acquired the rights from Twentieth Century Fox to produce a computer game based on the film *Alien*

"*Alien* will form part of our *Mind Games* series," explained Peter Holme, Argus's marketing manager "The player controls the commander of the space ship, but must manipulate and interact fully with the other characters in the game, who all have their own individual personalities

"You must save the ship and crew from the alien, the rating at the end of the game depends on whether you succeed, or let the beast get to Earth and destroy the human race.

"Because of the changing personalities of the characters in the game, the play will be quite different each time For instance if someone picks up a weapon, their confidence factor automatically increases"

The team of programmers for *Alien* includes people who used to work for failed Liverpool company Imagine Software, although Peter was unwilling to name names.

The *Alien* computer game will be released in November to coincide with the relaunch of the film. It will be published simultaneously for the Spectrum and Commodore 64 and will cost £8 99

● Argus has also recently completed the takeover of another Liverpool software house, Starcade. Its latest release *Savage Pond*, for the BBC and Atari, is to be converted for the Spectrum, and relaunched by Argus.

"Starcade is a father and son team, who wanted to concentrate on programming, rather than spend time on administration, so the sale to Argus was advantageous for them," said Peter

Ex-Imagine directors in court

AT a committal hearing at Liverpool High Court, ex-Imagine Software directors Dave Lawson and Mark Butler were ruled to be in contempt of court, after failing to attend a previous hearing

Lawson and Butler had been instructed under a court order to release former Imagine shareholder Steve Blower from the personal guarantee on Imagine's £100 000 bank overdraft.

The High Court judge said, however, that it would not benefit Steve Blower if Lawson and Butler were sent to prison or fined for contempt. The order to remove Blower's name still stands

"This dispute about the overdraft has been going on since February 10th this year, when I reached an out of court settlement with Dave Lawson and Mark Butler to pay me damages and take all possible steps to release me from the guarantee," said Steve Blower. "They did not do so"

The overdraft, at Lloyds Bank in Water Street, Liverpool, is jointly guaranteed by all three men, each of whom are personally responsible for the full amount if one or both of the others cannot meet their share of the debt

After Imagine went into liquidation in July, Steve Blower obtained the court order instructing Lawson and Butler to remove his name within three days.

"They failed to do that, and then did not attend the court hearing when the three days were up," Steve Blower said. "The judge said that the court order was still in force and that Lawson and Butler must pay all the legal costs. With interest, the overdraft is now around £112,000 I am now talking to my solicitor to see what we can do next."

Oric

◄ continued from page 1

"Oric will continue as it is, without any cash injection," the Oric spokesman confirmed.

Two Oric directors, Barry Muncaster (managing) and Paul Johnson (technical) have however, refinanced Tansoft, the software company which has written extensively for both Oric machines The two, between them, have acquired Tansoft for an undisclosed sum.

Sinclair

Continued from page 1

upgraded Spectrum machine to sell for around £150 "Such a machine would bring us into head-on competition with the Commodore 64

"Also it would encourage software authors to write for an expanded Spectrum and Z80 chip at a time when we want to focus attention on writing for the QL and 68000."

Tune in to Channel 8

CHANNEL 8 Software has launched a MIDI music keyboard interface — Midisoft 1 — to run with the BBC Commodore 64 and the Sinclair QL.

Also included in the package is software enabling the user to create polyphonic sequences in segments and chains, edit scores from staves displayed on screen, and dump music scored to a printer

"With Midisoft 1, you can use the computer's memory to store tunes in real time and manipulate them. You can correct the timing on your playing, or alter the tempo if you wish," said Channel 8's chairman Norman Perriam. "Connecting to the micro means that you can control up to 16 synthesisers at any one time.

Midisoft 1 should be available in November, priced at £189 95.

Details from Channel 8, 51 Fishergate, Preston, Lancs.

● The QL monitor produced for Sinclair by MBS Data Efficiency will sell for £299, not £199 as reported in last week's issue

US games

Continued from page 1

set to release Broderbund's *Loderunner* on Commodore 64 next week, at £9 95

"*Loderunner* has 150 screens, and also incorporates a games designer, so that the player can alter the parameters of the game Graphically it's not going to bowl anyone over, but it has an enormously addictive quality," said Software Projects sales manager Colin Stokes

"As far as I am aware, our contract with Broderbund is non-exclusive, and we are currently negotiating with them to market the top US title *Raid on Bungling Bay* in Britain as our next release"

Dungeons & Dragons from PSS

Swords and Sorcery is the next major release from Coventry based software house PSS.

The program is a Spectrum adventure combining text 3D and maze graphics and many Dungeons and Dragons role-playing games type features.

The playing screen is divided into three sections, a bottom text screen, a 3D view of a maze and a top view of part of the same maze As in role-playing games your 'character' develops in skills and experience over a number of games

There are a variety of objectives within the game including treasures to be found and quests to be undertaken. All the characters are animated in high resolution 3D The game is due for release in October



How to teach your Micro a thing or two

Thousands of home computer owners have yet to discover their microcomputer's potential to help with many of the problems and decisions that come up every day in the home or office

Perhaps you have always promised yourself that you would teach yourself programming, but have been put off by manuals which seem to assume a lifetime spent studying computer science and mathematics Maybe you have looked at other computer books, but have yet to find one which is free of unnecessary jargon or where the program examples bear some relevance to real life and not space invaders.

Relax, your search is over

The 'Learn BASIC' tutorials from Logic 3 are the latest development of a teaching method pioneered by Professor Andrew Colin and perfected by testing on 3 generations of students at Strathclyde University The 'Strathclyde Method' has been translated into 8 languages and used by over 300,000 microcomputer users

'Learn BASIC' is a jargon free, step by step, course in computer programming, which explains everything clearly in English, not computer talk. In a matter of hours you will be writing your first programs

'Learn BASIC' is designed for people who want to keep abreast of the computer age, for people who realise that understanding computers is a key to future success at work, at school, and as a parent

Get 'Learn BASIC' and teach your micro how to be useful! (Available from major branches of W H Smiths, Boots, Laskys, Greens, John Menzies and better computer shops nationwide)

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- 'Learn BASIC' tutorials ☐
- Logic 3 Spectrum Club ☐
- Logic 3 Commodore Club (64 and VIC owners only) ☐

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LOGIC 3

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Letters

Bounds of decency

Your magazine has finally passed the bounds of decency

I refer to the latest Automata 'advertisement' (September 20 issue)

I realise a full-page ad pulls in a lot of revenue and that a lot of people find Automata funny — but I do not consider putting babies with defects in a mincer to be funny Perhaps if adverts for software copiers were shown with funnies about cancer you would print them too

Yours disgustedly,

David Riley
28 Malvern Avenue
Spalding
Lincs

Automata is surely using in its advert the word 'defect' in the context of 'at odds with ideologically a totalitarian state'.

If we felt that an advert was genuinely in unacceptably bad taste then it would not be run, regardless of any revenue considerations such as those to which you refer

Supply and demand

The idea of low-cost software helping reduce piracy is ridiculous If a pirate can make a living with normally priced software sold at around half the price to his customers, then the copies of cheap software can equally be sold for half their price This may not be a vast sum per cassette but the lower-priced cassettes sell in larger volumes.

Where an individual or a club may purchase one £8 piece of software and copy that, they can buy three at £2 and copy all these

I feel the only way at present to prevent piracy is to produce cheap Rom software. MSX, (if it catches on) being cassette based, will help the pirates by giving them a market on around a dozen machines with one piece of software. The way reports have it, software houses are happy to convert software for MSX, and do not seem to be worried on that score

Finally, I have just purchased an Amstrad, and I am very pleased with it except for the price tag of £8 95 for software conversions? The shops are, I would say cashing in — everything for the Amstrad is £8 95 I very much want to buy software for my machine, but I will not pay these prices.

If the old supply and demand theory applies, as far as I am concerned, there will be no demand from me until the prices fall

K A Prince
22 Hanger Rd
Tadley
Hants

White to blue

I was typing haphazardly on the keyboard of my Commodore 64 when suddenly the cursor turned from white to blue and the machine locked up

Knowing that I had not touched the control key I set about trying to find a cause. After much experimentation I discovered that the effect could be obtained by holding down the Commodore key together with the , and = keys

Is this a new Commodore 64 bug?

Sarah Cotton
Studely
Warwickshire

Muddled letter

Somewhere between my source file and your typesetting my letter printed in the September 13 issue became rather muddled.

In the second paragraph, I meant to say that *Goto* statements are superfluous except in error trapping, and that structured programs are easier to write, debug and follow

Peter Bhagat
Clare College
Cambridge

Manual intake

Newcomers to more advanced computing who have bought the Amstrad CPC464 — and there must be thousands of them by now — may be interested to know that in the instruction manual in Chapter 8 (the concise reference guide) there is an omission.

Namely the keyword *Mod*. This is not listed in the chapter at all. The *Mod* keyword gives the remainder from a division sum For example, 10 Mod 3 gives the answer 1 since 10 − 3 *3 = 1

P J Long
3 Victoria Place
Bedminster
Bristol

Talk to each other

You deserve full marks for your QL page as it makes your magazine the only one worth reading! *QL User* and others don't get off first base when they fail to publish such stunning programmes as Richard Snowdon's utility for writing and editing programs on the word processor!

Having received my QL fresh from the factory with its new Rom I am anxious (like many others I suspect) to see what it can do when connected to a Spectrum. Please can you tell me if any interface is required as Sinclair, by supplying a network lead, imply this is not so However, all attempts to get a QL and Spectrum to talk to each other have failed for me so far There must be a magic combination of commands that will stop me tearing my hair out. Can someone help?

J C Cabne
96 St Kingsmark Avenue
Chepstow
Gwent



Are you only using

To only play games on a Commodore computer is like asking Albert Einstein to work out the square root of four

The computer's brain barely ticks over

To really stretch it, you need more interesting software programs For example, record keeping, interactive education, stimulating adventure games or word processing

And for those you need peripherals

Like a Commodore disk drive, a really fast storage and retrieval system with a vast memory

Or a Commodore cassette unit, the inexpensive way of loading and storing programs

For those who like the idea of text and graphics being more alive and having greater clarity than on a TV, there's the Commodore colour monitor.

1/10th of your brain?

COMMODORE MPS801 [ ]
Dot matrix printer £230.00. Tractor feed. Print speed 50 characters per second.

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And for hard copy, there are our four printers and a printer plotter. These will preserve on paper – in colour, black and white, chart form, graphs or text, the fruits of all your labour.

Finally, for more exciting games, there are joysticks and paddles.

So use your brain. And make sure you use all of your computer's brain.

Shooting a line

***Graham Taylor** talks to Tony Crowther of Gremlin Graphics*

If you own a Commodore 64 the chances are you'll have at least one game by Tony Crowther

If you don't recognise the name you'll certainly recognise the style Tony's games are distinguished by striking graphics and incredible attention to detail

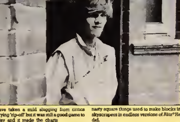
These features coupled with sheer arcade pace and addictiveness have ensured that games like *Loco*, *Blagger*, *Potty Pigeons* and now *Suicide Express* are sure chart winners.

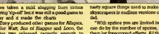
Tony is an unconventional programmer in many ways Although young enough to be designated a whizz kid his attitudes towards the industry and to his own work are matter of fact — dismissive, even. His comments mix a kind of amiable arrogance and genuine modesty in about even measures.

Starting with the Vic20 at the age of 16, Tony travelled the well-worn route of learning Basic and eventually graduating to machine code. With much is common between the Commodore machines the move to the more powerful Commodore 64 when it arrived was inevitable

The first Commodore program to achieve any fame was *Blagger* from Alligata Software. I cautiously suggested that — with its platforms and jumping — it was a little like *Manic Miner*, expecting a stream of denials and illustrations of all the ways in which it was absolutely the opposite I didn't get it.

"Well, one of my friends saw *Manic Miner* and liked it and suggested I should do something similar — so I did" *Blagger* may





have taken a mild slugging from critics crying 'rip-off' but it was still a good game to play and it made the charts

Tony produced other games for Alligata, *Killer Watt*, *Son of Blagger* and *Loco*, the latter two released recently enough to ensure that he is probably still more associated with that company than his current one, Gremlin Graphics.

It's a situation Tony is not happy about since he left Alligata earlier this year in some acrimony "They hit me with a new contract during my employment with them. Basically it meant that I would only receive royalties whilst I was actually employed by them — I'm not getting any royalties from Alligata now"

Although it's a situation that would have most people gnashing their teeth in fury Tony seems fairly indifferent. "There doesn't seem to be much I can do about it."

On to happier matters. Those amazed at the detail in Tony's games assume that there must be some magic secret to it all Some brave new programming wonder greater than all that have gone before. Surely, at the very least, a quarter of a million pounds worth of Vax development system must be involved somewhere?

"Oh no there are no special techniques at all, really" says Tony "I just jot a few things down and put them into the computer" I tried again. Surely all that smooth scrolling and pixel by pixel detail requires something well, exotic and special. "It's all user-defined graphics," said Tony.

User defined graphics didn't have the same ring to it as modal vectors. Did Tony mean regular, common or garden, user-defined graphics as used for nasty blob things supposed to be bombers and nasty square things used to make blocks in skyscrapers in endless versions of *Blitz*? He did.

"With sprites you are limited in what you can do by the number of sprites, I only use them for foreground effects. All the detail in the background consist of vast numbers of user-defined graphics which are relatively scrolled. Using characters to scroll as a screen instead of the high-res screen costs only 1K." That's it.

Relative scrolling is a technique where there are 'levels of background which scroll in the same direction but at different rates "I got the technique from *Forbidden Forest*"

With the puffing steam train in *Loco* and the 'sweet plot of *Potty Pigeon* in which your pigeon has to collect twigs for its nest, I wondered if Tony had a deliberate policy of producing non, or at least less, violent games.

"Well, I suppose they are a bit cuddly but with *Potty Pigeon* in particular I was just messing about and that's what turned up Actually I'm getting a bit bored with those sort of games with a large playing area, I fancy doing a shoot-them-up where you get to kill things — I've never done one." Sigh .

What about the cartoon-quality of the graphics found in his games? At times the display could almost be mistaken for a film — did he have any special artistic background? "No" Another theory in tatters. "Well — I do have an A level in technical drawing"

I ask Tony what other games he admires. "I don't look much at other games."

What is Tony working on now? "Well, with *Suicide Express* I think I've pushed the Commodore 64 to its limit in terms of the style of game people associate with me — I'll be doing some things for the BBC I think I can get games out of it at least as good as those on the Spectrum. I'll use mode five — I'm used to working in three colours."

He's right about *Suicide Express* and not only in terms of technical achievements — the whole game has an atmosphere, a sense of speeding relentlessly through the night, that makes it really special.

If I'd mentioned this to Tony he'd probably have said it was because there was a lot of dark blue and black in it.

Helicopter fury

Test your nerve and skill in a version of *Bomber* written for the Amstrad by David Channon

You are a budding helicopter pilot entrusted with the vital mission to raze the enemy headquarters (disguised as a seemingly innocent city) to ground.

You have already battled your way through the enemies defences, and suddenly realise that the outcome of the battle is in your hands — but you are running out of fuel.

The game itself includes realistic use of colour and all three sound channels. It also uses a high resolution display, rather than the normal 20 column grid of Mode 0, with skill levels and high score facilities.

Program Notes

10–110	Helicopter movement for title sequence
120–210	Bomb drop and letter print for title sequence.
220–380	Instructions.
380	Sets rotor blade sound.
400–310	Main loop for ship movement as well as key and joystick read routine.



```
10 REM BOMB DROP
20 REM Program for Amstrad CPC 464 by David Channon
30 REM title screen
40 ENV 1,1,1,3:ENT 1,100,2,2
50 INK 1,0:INK 0,14:BORDER 14:RESTORE:MODE 2:CLS:GOSUB
60:TAG  :ENV 2,100,1,1:SOUND 4,200,-32767,7,2,0,5
70 FOR n=0 TO 420 STEP 4
80 MOVE n,380
90 CALL &BD19:PRINT CHR$(254);CHR$(255);
100 IF n=200 OR n=216 OR n=232 OR n=248 OR n=312 OR
n=328 OR n=344 OR n=360 THEN GOSUB 130
110 NEXT
120 TAGOFF:LOCATE 1,21:FOR n=0 TO 16:PRINT CHR$(7):NEXT
MOVE 200,374:DRAWR 166,0:GOTO 230
130 FOR i=290 TO 200 STEP -2
140 MOVE n,i
150 SOUND 7,400,7,3,7
160 CALL &BD19:PRINT CHR$(252);
170 NEXT
180 MOVER 0,0:PRINT CHR$(230);:CALL &BD19:MOVER 0,0:
READ a$:PRINT a$;
190 RETURN
200 DATA B,O,M,B,D,R,O,P
210 REM Instructions
220 WHILE INKEY$<>"":WEND
230 LOCATE 1,8:PRINT"You are a budding helicopter pilot
with a mission to destroy an enemy city ."
240 WHILE INKEY$="":WEND
250 PRINT:PRINT"which intelligence tells you is no city
at all but a headquarters for designers"
260 PRINT:PRINT"of a revolutionary new nuclear device
which,could be a turning point of the war "
270 PRINT"You are running out of fuel and descend
gradually , with enough fuel to enable "
280 PRINT:PRINT"you to rise twice in each game."
290 PRINT:PRINT"A crash into a building is fatal, and
only the total destruction of the city "
300 PRINT:PRINT"would prove a successful mission..."
310 PRINT:PRINT:PRINT"Pressing the large 'ENTER' key or
moving the joystick up will allow you to rise."
320 PRINT:PRINT"Press the 'SPACE BAR' or normal JOYSTICK
fire button to drop your bombs but"
330 PRINT:PRINT"remember guidance computers will only
allow one bomb in the air at a time."
340 PRINT:PRINT"PRESS 'SPACE BAR' TO CONTINUE."
350 IF INKEY$<>" " THEN 350 ELSE 360
360 SOUND 1,0,25,7:INK 1,24:INK 0,1:BORDER 1:GOSUB
1150:GOSUB 870:GOSUB 660
370 TAG
380 ENV 1,100,1,1:SOUND 4,200,-32767,1,2,0,2:REM chopper
blade envelope
390 f=2
400 FOR v=380 TO 40 STEP -16
410 FOR h=0 TO 600 STEP 16
420 MOVE h,v
430 CALL &BD19:PRINT CHR$(254);CHR$(255);
440 IF TEST (h+65,v-16)<>0 THEN 950
450 IF f1=0 AND INKEY(47)=0 THEN f1=1:GOSUB 1040
460 IF f1=0 AND JOY(0)=16 THEN f1=1:GOSUB 1040
470 IF f<>0 AND (INKEY(18)=0 OR INKEY(72)=0) AND v<357
THEN MOVE h,v:PRINT"  ";
v=v+16:MOVE h,v:PRINT CHR$(254);CHR$(255);:uf=uf-1
480 IF f1=1 THEN GOSUB 1080
490 NEXT h
500 MOVE h,v:PRINT
510 NEXT v
520 SOUND 132,0:REM stop blade envelope
530 REM Game won
540 SOUND 1,200,100,7,1,1
550 MODE 2
560 ps=ps+ps:ed=ed+2:IF ed>20 THEN ed=20
570 IF ps>hs THEN hs=ps:INK 1,26:PEN 1
580 PRINT"Congratulations you achieved a score of ";ps
590 IF hs=ps THEN PRINT:PRINT:PRINT:PRINT"You even made
the highest score so far!"
600 f1=0:z=1:ps=ps:PRINT:PRINT:PRINT"You are now to go on
another city so be ready to improve your score ...";ps=0
610 PRINT:PRINT:PRINT:PRINT"Press SPACE BAR to
continue your game."
620 WHILE INKEY$<>"":WEND
630 IF INKEY$<>" " THEN 630 ELSE GOSUB 870:GOSUB 790:GO
SUB 660:GOTO 370
640 STOP
650 REM Set up buildings
660 MODE 0
670 FOR n=3 TO 19
680 a=INT(RND*5)+8
690 PEN INT(RND*12)+4
700 FOR f=25 TO a STEP-1
710 LET ps=ps+1
720 LOCATE n,f
730 PRINT CHR$(255);
740 NEXT f
750 LOCATE n,a-1:PRINT CHR$(250);:PEN
760 NEXT n
770 RETURN
780 REM Graphics
790 SYMBOL AFTER 240
800 SYMBOL 254,4,14,4,7,3,0,0,0
810 SYMBOL 255,127,107,107,127,107,107,127,127
820 SYMBOL 252,254,16,124,246,254,124,[illegible],54
830 SYMBOL 250,8,28,62,127,107,107,127,127
840 SYMBOL 251,[illegible],107,127,107,107,127,127
850 RETURN
860 REM Set up pen colours
870 FOR c=4 TO 15
880 INK c,[illegible]
890 NEXT c
900 INK 1,16:INK 2,17
910 INK 3,9
920 RETURN
930 REM Crash
940 WHILE INKEY$<>"":WEND
950 SOUND 132,0:SOUND 1,RND*500,10,7,1,1,5:SOUND 2,RND*
20,7,1,1,7:SOUND 4,RND
*600,80,7,1,1,2
960 MOVE h+20,v:PRINT CHR$(238);CHR$(239);
970 SPEED INK 1,1:BORDER 15,16:FOR s=0 TO 100:INK 0,
RND*26:NEXT s
980 TAGOFF:INK 0,1:BORDER 1:CLS
990 MODE 2:INK 1,26:PEN 1:IF z=1 THEN PRINT"You weren't
lucky this time as your score remains";ps
1000 f1=0:IF z=0 THEN PRINT:PRINT:PRINT:PRINT"You need
some practice you were killed so achieve a score of 0"
1010 PRINT:PRINT:PRINT:PRINT"Press SPACE BAR to start
another game."
1020 IF INKEY$<>" " THEN 1020 ELSE 1030
1030 z=0:ps=0:GOTO 360
1040 REM Bomb drop
1050 g=h:b=v-16
1060 IF g/32<>INT(g/32)THEN g=g+16:t=b-200:c=b
1070 PLOT 620,620,3:MOVE g,b:PRINT CHR$(252);:b=b-16:MOVE
g,b+24:PRINT CHR$(32);
:PLOT 620,620,1:RETURN
1080 LET b=b-8:PLOT 620,620,3:MOVE g,b:CALL &BD19:PRINT
CHR$(252);:MOVE g,b+16:PRINT CHR$(32);:PLOT 620,620,1:SOUND
1,c,8,7:c=c+1
1090 IF b<=0 OR b<=t THEN f1=0
1100 IF TEST (g+10,b-16)<>0 AND b>t THEN PEN 3:MOVE g,b:
PRINT CHR$(251);:RETURN
1110 IF TEST (g+10,b-16)<>0 THEN SOUND 2,c+100,5,7
1120 IF b<=0 THEN MOVE g,b:PRINT CHR$(32);:SOUND 2,100,
10,7,0,0,5:FOR x=1 TO 3:OUT &400,6:OUT &100,39:FOR p=0 TO
10:NEXT p:OUT &400
,6:OUT &100,38:FOR p=1 TO 8:NEXT:NEXT
1130 IF b<=t THEN MOVE g,b:PRINT CHR$(32);
1140 RETURN
1150 REM Difficulty
1160 MODE 2:CLS:PRINT "Enter the difficulty you wish to
attempt (1-3) ";
1170 k$="":WHILE k$="":k$=INKEY$:WEND
1180 IF k$="1" THEN ed=20:SOUND 1,200,25,7:GOTO 1230
1190 IF k$="2" THEN ed=15:SOUND 1,400,25,7:GOTO 1230
1200 IF k$="3" THEN ed=10:SOUND 1,600,25,7:GOTO 1230
[illegible]
1220 GOTO 1170
1230 CLS:PRINT"Press SPACE BAR to start"
1240 IF INKEY$=" " THEN 1250 ELSE 1240
1250 SOUND 1,400,25,7:CLS:RETURN
```

GOOD BYTE

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Hardware Review

Duck shoot

System Compunet **Micro** Commodore 64, plus Commodore modem **Price** Commodore Communications Modem £99.99 **Supplier** Commodore Business Machines (UK) Ltd, 1 Hunters Road, Weldon, Corby, Northants.

Yes, it's finally happened. A mere six months after eager buyers ordered their first CBM modem for the special "Compunet" service at the Pet Show, Compunet itself has actually come into visible existence. Now that the proud owners of the modem can use it for something other than rival Prestel, just how does the new service measure up to its claim to be "arguably the most sophisticated interactive database yet set up for home computer users"?

As of this moment, I have to report that Compunet has yet to fulfill such high hopes, although there are signs that within the very near future, it might get a great deal more exciting. The problem is that, although there are a number of pretty and intriguing entry pages for various sections, many of the sections themselves are not yet up which, after all the time taken to launch the system, is rather a pity.

The modem itself is a substantial black box, which plugs into the cartridge port, with a cable for the telephone jack. That's the lot. Just plug in the modem, switch on the CBM 64 and there you have an opening screen telling you that you have 30719 bytes free. Registered users have an ID and password which are used after typing the command *Connect* plus the telephone number of the nearest access node. The modem dials for you, the screen changes colour to show that you are being connected and, once you have identified yourself, you're in.

The ID will be particularly important once Compunet is running properly since each individual ID is programmed into the modem. Thus, if you download priced software, it will be direct-debited to the owner of the ID for the modem, according to an agreement signed by the user when registering. Registered users will also be able to use an electronic mail system, the Comp-U-Card credit card electronic shopping service, and, one of the major new features of this service, upload programs and text frames to specified parts of Compunet.

My brand-new package came without the special user manual, which gave me the opportunity to test the claims that the Compunet routes and onscreen facilities were self-explanatory. The system works through a series of directories each with a "duck-shoot" menu (options on a status line at the bottom of the screen which are selected by cursor and implemented via *Return*) and a "bar" at the top of the directory which can be moved over the selected item. Once the subject is highlighted, options on the duck-shoot menu such as *show* (to display the frames), *print*, etc. can be used.

The explanatory frames are reasonably full. Items displayed this way have a separate duck-shoot menu giving the choice of displaying continuously, frame-by-frame, or exiting to the directory. The main duck-shoot lets you select a particular area through *Goto*, move "back" to the last directory and has a variety of instructions covering uploading, downloading, saving frames and how to "edit".

Uploading of user's own software will take place to the "jungle" area, which is a users playground of messages, tips and programs for sale. You can specify how long you want your program, or message, stored in the jungle and you will be charged accordingly. The life of any such item can be extended by the user if required.

Seasoned Prestel users will find the frames rather slow, since the modem implements full error-checking through the Packet Switching System, and it can take up to 10 seconds before a frame starts displaying. On the other hand, Compunet say that there is no chance of corruption from line noise, something that has a nasty tendency to play havoc with "mailbox" operations on Prestel. The few graphics pages already up on Compunet are of far higher quality than those on Prestel, since they make better use of the 64's facilities.

The system is flexible, and will allow user-to-user contact as well as viewdata emulation for Prestel and other 1200/75 baud systems. As of the moment of writing this review, Compunet is providing very few thrills after the first tour of the directories. But the potential for it to do so is clear.

Barbara Conway

Double strike

Hardware *M-1009 dot-matrix printer* **Micro** Any Centronics or RS232 machine **Price** £199 **Supplier** Brother, Shipley St, Guide Bridge, Oldershaw, Manchester.

Most home computer users, sooner or later, feel the need for a printer. The biggest problem is cost. Cheap printers often use expensive paper, give copy that fades and is unacceptable for letters. Yet, if you want to do anything other than list programs, then you could pay more than the price of your computer.

The new printer from Brother — the M-1009 costs about £200 but has a number of features that make it more than a stripped-down budget model.

For a start, it takes A4 sheets of plain paper and optional extras include both a roll and a fan-fold feeder and, the nine-pin print head gives characters that are clear although obviously the product of a dot-matrix device.

I hooked up the Brother to a Spectrum, via a Kempston interface. Once the necessary software modifications were made, the first test was to print out a 40,000 word book, written on Tasword Two. The printer behaved impeccably, and was also quick: a sheet of double-spaced A4 took about 50 seconds.

The low-cost of the machine is to a certain extent reflected in its construction. only two screws hold on the top cover which wobbles. The print mechanism is solid enough, although the paper release lever felt a little flimsy. A row of easily accessable dip switches allow changes in the hardware configuration. The model I tested was equipped with a Centronics interface, but RS 232 is an optional extra. This supplements the parallel input; you may switch between the two — a good investment if you are likely to change computers in the future.

There are a number of software options on the M 1009: underline, enlarged, condensed, double strike, super and subscript which let you ring the changes, and some modes can be mixed. Bit image printing can be achieved, but I had problems stemming from my interface which expands Sinclair keywords. A dose of machine code should solve this.

Operating the printer is simple. Two membrane keys force line-feed and switch the printer on and off line. An LED indicates errors. If a problem occurs the printer switches itself 'off-line'. Printing is logic seeking and bi-directional, which makes the machine very time efficient. Loading a sheet of paper is a bit fiddly though. Even after a hundred pages I could not avoid putting a dot on the top edge of the paper as it passed over the print head.

The manual is a classic example of bad translation and strange idioms cloud the meanings of many important sentences. Fitting the ribbon cassette, for example, is very poorly explained.

Despite these small quibbles though, I rate the M 1009 as very good value. Unless you want daisy-wheel quality, it will cope with most needs, and should give sterling service for many years.

Jeff Neylor


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Is Vic there?

Andy Pennell looks at Commodore's latest bid to capture the budget micro market from the Spectrum—the C16

After years of speculation about its death, the Vic20 is now officially obsolete, replaced by the Commodore C16. The C16 comes in a starter pack, similar to the Vic, consisting of dedicated cassette deck, and four software packages, for £139,99. The 16 in the name refers to the total Ram available, though like the 64 the amount of user Ram is considerably less.

It looks just like any other Commodore machine, in the same case as its predecessors, though in a different colour scheme—the case is dark grey, and the keys light grey. The keyboard itself is of the usual Commodore standard, with decent, angled, keys, though the layout is non-standard, even compared to its predecessors. If you've got used to the positions of keys like, *, +, *Home*, and the all important cursor keys on the 64, than you will have great fun on a C16, as they're all swapped about. I personally find CBM keyboards a little too soft, but typing is a personal thing. It's funny, though, that Commodore can put a decent stepped keyboard on a £140 C16, but Sinclair can't put more than a flat rubbery thing on the £400 QL.

Inside the machine is a smallish circuit board, leaving quite a bit of empty space. The American origins of the machine are immediately apparent, from the metal screening all over the circuit board. In the USA, there are certain legal requirements for radio interference, but there are no such laws in the UK, so British micros usually drown out the average radio in the same room. There are few components on it, the main ones being the 7401 processor and the custom chip that does the clever stuff like producing a TV display. What is this 7501 processor I hear you ask? Well, it's just another Commodore version of the illustrious 6502, as the 6510 was in the 64.

On the C64, with its 'elephantine' 64K of memory, when you switch on you get a message saying something like '39K bytes free'. The remaining 26K is used up by the system, so about 40% is unavailable in Basic. On the C16, with 16K Ram, you get about 12K free, which isn't bad. However, the moment you select one of the high-res graphics modes, another 10K of memory goes down the tube, leaving you with under 2K user Ram, less even than the Vic20. This I feel is the major shortcoming of the C16—the lack of memory. On the 16K Spectrum, about 8K is left to the user, which is quite enough for many uses, but designing a 10K screen for a machine that has only 16K is a major oversight by Commodore. It was supposed to be technically possible to expand it up to a Plus/4 and onwards to 128K, but don't hold your breath waiting for Commodore to do anything soon.

Commodore dialect

It has been the hallmark of previous CBM machines that the Basic didn't support any of the machine's best features, such as graphics and sound. It practically made it a necessity to buy one of the many 'extended Basics', either Simon's Basic from Commodore themselves, or one of the independent programs. Well, on the C16, Commodore have killed off that piece of the market as Basic version 3.5 is supplied with the machine, which has all the extra commands you'd expect on any other machine.

The Basic sits in 32K of Rom, along with the kernal, which looks after the whole machine, and a machine-code monitor. The Basic is Microsoft as you'd expect, but in the same funny Commodore dialect used before. Programs are edited using the same screen editor as before, but with the addition of a few welcome features such as automatic insert mode. The same PET-type graphics characters are available, and the function keys are initially configured to produce various key sequences.

The default commands are a little strange, being mainly concerned with the disc drive, and as most users would not have a disc drive, but the supplied cassette recorder, they seem an odd choice. Anyway, if you don't like them, the *Key* command re-defines them to be anything else—no *Pokes* necessary on the C16. For entering programs there are a few other commands, like *Auto* and *Renum*, which are again new to CBM owners. Fans of 'structured programming' will not be impressed by it, it's only such features being *Do ... While* and *Do ... Until*, with no procedures or long functions.

By pressing the *Esc* key followed by another, various extra functions can be invoked, the most interesting of which are the 'window' commands. Windows are one of the in-things at the moment, and have appeared on the Amstrad and QL, and now the C16. However, you can have only one window at a time, so it's not really in the same league as the others mentioned. I believe a similar effect can be obtained on the C64 by *Poke*ing anyway. Regrettably there is no *Window* command, so to the



process of defining a window has to be done by a tedious sequence of control code printing.

The C16 has five graphics modes. The simplest is text mode with the usual 40 by 25 lines of text, with each letter able to be a different colour. This is the only one that doesn't take up the extra 10K of memory. In text mode, there are 15 different colours, each with 8 levels of luminance, and black, effectively giving 121 different shades, all of which can be displayed at once.

There are also two high-res modes: one with a 4 lines of text at the bottom of the screen, and one without. In high-res the resolution is 320 by 200, which is about average nowadays, though there is a colour restriction—you can only have two colours in one 8×8 pixel character square, the same as the Spectrum. However, you can still have 121 different colours at once. The two remaining modes are 'multi-colour' modes, which have a resolution of 160 by 200, but can have up to four different colours per character square, still with the choice of 121 colours. The main thing missing on the C16 compared with the 64 is sprites. Undoubtedly the best feature of the 64, they made it much easier and faster to write games for the 64, as the programmer didn't have to bother about the mechanics of actually putting shapes onto the screen and removing them later, as the hardware did it all.

Five graphics modes

They are not present on the C16 though, which is a sad loss, and it will make it harder to write quality games for it. The Spectrum programs show that attribute problems can be overcome by skillfull software, but it has taken a few years to work it out.

Controlling the graphics from Basic is easy, with commands like *Draw*, *Locate*, *Box*, *Circle* and *Paint*. The *Circle* command doesn't just draw circles, but can produce ovals, arcs, or any kind of polygon. The *Char* command is a sort of *Print At* command, that works on any graphics mode, and *Paint* is a way of filling in areas with solid colours. The speed of the graphics generally, and especially the filling is positively slothful when compared with the speed of the QL, and is a good demonstration of the difference between an 8-bit chip like the 6502 and the 32-bit 68008. The Basic itself is a little slower than previous CBM dialects, but, of course, not as slow as the Spectrum.

The sound facilities of the C16 are not half as good as the 64s, but are still adequate. There are two voices, one for notes, and one for notes or noise, with overall control. There may be more features, but they are not accessable from Basic, and as the *Programmers Reference Guide* has not yet appeared, I can't say. As it gets piped through the TV, volume is not a probem.

The built-in machine-code monitor is not earth-shattering, but it's better than nothing. It has a one line assembler, disassembler, and various memory read and write modes, though it doesn't have single stepping. It seems to have code *Save* and *Load* commands via the cassette recorder (and not disc), but I can't be sure as I had no instructions at all for the monitor.

The C16 comes with its own dedicated cassette recorder, which seems to be the same as the usual one, except that it has a different plug. The tape format is the same slow one as before, so the market for turbo loaders remains for the C16. It also connects to the infamous 1541 disc drive, notorious for its incredible slowness, but also supports the new disc drive, up to four times faster, but not yet available.

The Basic has various commands to control the disc drive, including various back up procedures, and a *Directory* command. While other users may think it usual, this latter feature is innovative on a

Marketing muscle

Commodore. On the C64 and Vic20, getting a directory of a disc involved wiping whatever program currently in memory, but now you can be like everyone else and display your discs contents without losing your program.

As with the QL, the joystick sockets on the C16 are a con by Commodore. Instead of the usual Atari-type sockets, it is cursed with two strange looking mini din type sockets, so you can't actually plug anything into them. Well, nothing except Commodore's own, forthcoming, 'super joysticks' that is. They aren't much different to the normal run-of-the-mill switched ones.

The documentation supplied with the review machine was very much pre release, consisting of a couple of hundred photo-copied sheets. What was there was good, though some of the listings were inaccurate. The C16 will be supplied with four cassettes, but these, too, were unavailable for review.

The C16 competes directly with the 48K Spectrum and the Oric. Its advantages include the supplied cassette recorder, good keyboard and better graphics, while its disadvantages are the small amount of Ram and, for now at least, dearth of software. Conversions from the C64 are going to take time, because of the lack of sprites and minimal user Ram, though Vic conversions will be easier.

If it had 16K Ram more then it would be certain to do well, but as it stands it does not have enough for much programming, though Commodore's marketing muscle will ensure it sells.

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Reviews

A clue

Program *Valkyrie 17* **Micro** Spectrum **Price** £9.99 **Supplier** Palace Software, 275 Pentonville Road, London N1

Valkyrie 17 is an adventure game by The Ram Jam Corporation. A new independant software group being marketed by Palace.

It's an adventure game unlike any other — but less for technical reasons than approach. It's definitely different.

The plot of the game involves having to prevent the construction of a super weapon by a group of old Nazis

You begin the game in a bar in the company of a lady with a thick German accent. Could she be a clue?

From here on things are alternately confusing and funny. You'll probably spend ages trying to get out of the hotel — it seems the manager wants you to pay your bill

The game understands relatively complex sentences although baulks at conjunctions eg, *Take Gun and Take Robe and Wear Robe.* The graphics are reasonably detailed and above all, quick. No waiting around for ages here

Removing the boring bits might be a maxim for the game actually. Once you've grasped the basic way of solving a problem the computer recognises the fact and lets you get straight on. For example, supposing at one point you need to tie sheets together to get out of a window, as soon as you've got as far as *Tie Sheets* it says "the sheets are tied together hanging out of the window" No messing around trying to find the right words *Go to Window, Tie Sheets to Window*, etc, etc

This sort of thing improves the play massively though it may not appeal to the more literally minded people

The game is witty, clever and slick. There are over a hundred locations and a similarly sized vocabulary. Lots of clever use of sound effects for telephones which may sometimes be usefully answered. Also some mysterious thumping. I liked it a lot.

Ian Waltham

Analysis

Program *Forecaster* **Price** £15 **Micro** BBC B **Supplier** Brain Power, Triptych Publishing Limited, Sterling House, Station road, Gerrards Cross, Bucks SL9 8EL.

Forecaster by Kevin McKeogh and Stuart Armstrong is not a toy or a glorified garden fete clairvoyant. It is a practical tool for people who need to establish trends in business or other activities.

The program offers several forms of statistical analysis and can cope with fair quantities of data. There is a substantial handbook which reminds you that it is necessary to think fairly hard about the information you want to find and which pieces of input will help. You can print and save analyses, but note that the cassette version only saves to tape and the disc to disc. It is well worth saving your raw data once entered *and* before processing. Certain combinations can crash the program by taking calculations outside the limits of the micro.

The value of this package is that it includes as a bonus a very useful instruction cassette which with the first section of the handbook gives a clear, well-written explanation of the processes involved. It is not easy, but it is straightforward and written for the non-technical person, so with patience everyone can appreciate and use the system. The package would probably be worth its price for the teaching section alone — as a combined deal it can be warmly recommended.

Dave and Jan Watterson

Spelt out

Program *Alpha-Beth* **Price** £6.99 **Micro** Spectrum **Supplier** A & F Software, Unit 8, Canal Side Industrial Estate, Woodbine Street East, Rochdale, Lancashire OL16 5LB

Beth, a rather chunky sprite, hops around a representation of a near-standard Qwerty keyboard, controlled by user-definable keys — a plus point in an educational program.

Above her a VDU displays questions and Beth must jump on the correct keys to spell out the answer

This can be done unaided for a bonus or help is available via a *Hangman*-type game option or a brief glimpse of the answer. Hindrance comes from the school bully and allies who move randomly round the keyboard. Collisions are fatal.

The game is reasonably enjoyable although it is too easy to type a letter twice and questions begin to be repeated. Other databases of questions are apparently available. In theory, the program combines spelling practice, keyboard aquaintance and general knowledge. However I suspect that it merely encourages rote learning of facts.

Despite these reservations I would have given *Alpha-Beth* three stars, if not for the inclusion of several spelling errors in the program itself. One question even requires the answer Captin (sic) Kirk'. This is unforgiveable in an educational game and I cannot recommend it.

John Minson

Musical

Program *Music Master* **Micro** Commodore 64 **Price** £17.95 **Supplier** Supersoft, Winchester House, Canning Road, Wealdstone, Harrow, Middx.

Given the excellent sound facilities on the Commodore 64, it's no surprise three are any number of composing programs available, some claim to be composers, others claim to be synthesisers, a few are supposed to be both.

Music Master is the musical equivalent of a word processor and is intended for those with no musical knowledge whatsoever. Rather like those easy-to-play portable keyboards the program begins with some demonstrations and some presets for electric piano, drum and clarinet which can be used separately or together.

The keyboard is used to play the scale notes with a more conventionally represented keyboard displayed on the screen. The program is set for monophonic playing but, since you have three channels available, three note polyphony is possible

You can create your own sounds by manipulating the waveforms and envelope shapes, changing the parameters by reference to the screen. More complicated effects are possible by synchronising different oscillators.

The other major section is the music screen which lets you type in music straight from the keyboard, manipulate it and store it. The program comes with various presets in the form of sounds and rhythms. The manual is pretty good and the price is probably justified by the completeness of the system.

Brian Eastly

Reviews

Trapped

Program *Hyperaction* **Micro** Spectrum **Price** £5.95 **Supplier** Silversoft, London House, 271-273 King Street, London W6

Hyperaction's hero is a spider, and this alone ought to justify its release to an unsuspecting world.

Unfortunately, there is little else to recommend the game. The spider is in the middle of a fairly small maze, and must touch some "ZX" symbols to gain points. Barring the way are a number of pacman gobblers who seem to like spider, for lunch.

The difficulty of the game is that the maze is so small that there is very little room to avoid these hungry mite-eaters, and you are easily trapped in a corner with nowhere to run. There are more screens and new dangers to face, but since I never got near clearing the first one, even with the generous allowance of six lives, I cannot confirm that.

I suppose there must be a technique to it all, but I couldn't find it!

The graphics are large and detailed — hence the small size of the maze — and colour is used well if you have a colour monitor or TV. In black and white, though, some of the pacmen are almost invisible, adding to the game's difficulty.

There is some use of sound, though not during the action, presumably to avoid slowing things down too much.

As you would expect from Silversoft, the game is bug-free, provides for a wide range of controls, and responds well. Maybe, it could get to be addictive — if I could do it.

Simon Springett

Complex

Program *Microgo* **Micro** BBC/Electron **Price** £9.95 **Supplier** Edge Computers, 3 Junction Road, Reading, Berks.

There can't be all that many traditional games left to computerise.

Latest to fall under the spell of the microchip is *Go* which is, apparently, the Japanese equivalent of darts as a national game.

It's a strategic game for two players involving the placing of stones on a lattice-like board in such a way as to enclose and thereby capture territory from your opponent. Though the rules are simple, playing the game can be incredibly complex.

The computer version allows you to play against the computer, no mean achievement considering the potential complexity of the considerations involved in play. Response times are fast — no more than three seconds on the BBC on average so you don't have to hang about.

There is an excellent 'Beginners level' play option where, as you play the game, mistakes and/or vulnerable positions are pointed out to you by the computer.

It's a useful option and I found it invaluable while trying to master the game.

A well designed and excellent implementation of a fascinating game.

Brian Eastly

Slides

Program *Son of Blagger* **Price** £7.95 **Micro** BBC B **Supplier** Alligata Software Limited, 1 Orange Street, Sheffield S1 4DW

It's like watching a world immersed in clear syrup. The animation ripples along in an unsettling way which does not make it any easier to negotiate the hazards of a top secret building to escape with secret papers. *Son of Blagger* repeats the formula of using a window at the top of the screen to display our hero while the bottom half keeps track of the score.

The game works because the sequence of slides, trapdoors, stepping stones and marauding beasts is full of novelty and challenge.

Your task is to pick up the keys to the establishment and escape. It is seldom straightforward. Some keys are visible but behind walls this mean a major detour to pass. Others are obtainable but then you're trapped. Even skilled games-players should find several hours of fun here.

Dave Watterson

Kamakazi

Program *Suicide Express* **Price** £9.99 **Micro** Commodore 64 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield

Try twiddling your thumbs in opposite directions. Tricky isn't it?

Now imagine doing this walking on a tightrope suspended between two double decker buses motoring down the M1 at 60 mph, while reciting Shakespeare and ducking to avoid the enemy gunfire. You are now experiencing a sensation not unlike playing *Suicide Express*.

The format of the game is similar to *Loco* — with a scrolling plan view of the network of tracks in the lower section of the screen (together with your score, status and so on), and a side view of the action above.

The graphics are superb in detail, colour and perspective, but you are unlikely to have time to appreciate this, as your mind is usually on other things.

The idea is to control a futuristic train equipped with missiles, fired in front or up and behind. Travelling along the network — choosing when to switch tracks—the least of your problems are avoiding oncoming traffic and replenishing your ammunition supply (too many on board and you blow up).

Other diversions include purple kamakazi hovercraft, green delta winged bombers, and for good measure the odd flying saucer . . all programmed to prematurely end your journey.

You are given three chances to get as far as you can.

To hell with the details this game has got me hooked, from the loading screen and music to the machine-code synthesised voice announcing 'Game Over'.

Joanna Gordon



Control

Program *Kokotoni Wilf* **Price** £5.95 **Micro** Spectrum **Supplier** Elite Systems, 55 Bradford Street, Walsall WS1 3QD

Kokotoni Willy — sorry, *Wilf* — is an arcade adventure in the style of the *Jew Set Miner*'s but this quest is for pieces of an amulet scattered through time.

Starting One Million BC Wilf must dodge dinosaurs, avoid adders and give sharks the slip to gather all 12 pieces before he can retrace his steps through the screens to a time gate to the next era.

It calls for perfect timing and a steady hand to make Wilf, who has wings, walk or fly but there is a choice of keys which are so responsive that, with practice, he can be made to hover in mid-air.

The screens are beautifully drawn and animated and there is a real incentive to continue. There are several witty touches, such as two cavemen playing with a wheel, and many ingeniously timed traps.

If I have a complaint it is that when your sixth Wilf is killed you go back to the very start however far you had advanced.

The game is well structured though, beginning easy and becoming extremely difficult. *Kokotoni Wilf* calls for control, cool and strategy. It is FUN! Supporters of the 'Miner' won't be disappointed.

John Minson

Nightmare

Program *Nightmare Maze* **Price** £6.95 **Micro** BBC B **Supplier** MRM Software, 17 Cross Coates Road, Grimsby, DN34 4QH

There is a horror built in to *Nightmare Maze* by Mike Williams: you can't move where you want! Just as in a dream you know where to go but can't make your feet obey, so in this game you have to be in exactly the right spot to cross the maze's paths. If you press two direction keys at once the micro always reads the wrong one first.

It would be easy if you were not being chased by speedy beasties who don't suffer the same problems themselves. What's worse is you can't simply keep out of their way for you have to catch a certain number of keys (eight on the first level) in order to unlock the door and escape. If you can reach a cup of black coffee the monsters vanish for a few blissful moments and you get a couple of keys. Then they're back and angrier than ever. When you do escape, the nightmare continues with more of the same.

The maze is one of the diagonal type becoming popular as poor-man's 3-D effect and the game is infuriatingly addictive.

Dave Watterson

Strategy

Program *American Football* **Price** £9.99 **Micro** Spectrum **Supplier** Argus Press Software Group

To those who think American football is just two rows of bodybuilders bludgeoning each other, a computer simulation may seem futile. Far better to hurl yourself against a brick wall.

But addicts of Channel Four's broadcasts know that the ol' Gridiron is a matter of strategy; metaphorical warfare, with each team fighting to win ground. Argus therefore dub this a 'Mind Game'.

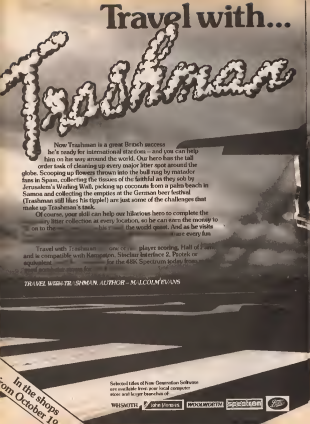
The display is a plan of the field, populated by tiny, well animated players. Details of 'Yards to Go', 'Downs', 'Time Left' and the position of the ball appear below it. Play, against either computer or human, consists of entering a two-letter code for your tactics, chosen from eleven offensive and four defensive plays, plus 'Time Outs', with a flashing character indicating the ball carrier. After entering the tactics you then watch the little men hurling themselves into one another.

The program includes an invaluable booklet which elucidates the game's mysteries before explaining the program.

Like many micro simulations it is difficult to capture the 'pazzazz' which characterises the real thing (no microchip cheerleaders?) but I enjoyed it. Playing against the computer the game tends to degenerate into a variation on 'stone paper scissors', but played by a league of friends it could become a cult.

The program is a bit pricey, though.

John Minson


Travel with...
Trashman
Now Trashman is a great British success he's ready for international stardom – and you can help him on his way around the world. Our hero has the tall order task of cleaning up every major litter spot around the globe. Scooping up flowers thrown into the bull ring by matador fans in Spain, collecting the tissues of the faithful as they sob by Jerusalem's Wailing Wall, picking up coconuts from a palm beach in Samoa and collecting the empties at the German beer festival (Trashman still likes his tipple!) are just some of the challenges that make up Trashman's task.
Of course, your skill can help our hilarious hero to complete the
ry litter collection at every location, so he can earn the money to
on to the
the world quest. And as he visits
are every fun
Travel with Trashman
player scoring, Hall of
and is compatible with Kempston, Sinclair Interface 2, Protek or equivalent
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spectrum
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New Generation Software
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New Generation products are sold according to their terms of trade and conditions of sale

Down on paper

Turn your Spectrum into a word processor ... R A Jones shows you how

This editor provides the user with simple word processing facilities, and as such may be used with the ZX printer for writing letters or even short articles.

The editor runs on a 48K Spectrum, although it should also fit into the 16K version. If any out of memory problems occur on the smaller machine then changing the variable size in line 80 to a smaller value should provide a cure, as this governs the size of the text file.

On loading and running the program, a message is displayed. This informs the user that, during editing, pressing *Edit* and then entering *Help* will show all the facilities of the editor.

Pressing any key will then clear the screen and print the editing cursor in the top left corner. Text may now be entered from the keyboard.

The editing facilities are, briefly, as follows:

1. To move the cursor around the screen, use *Caps Shift* and any of the arrow keys.
2. To delete a character and close up the text, type *Symbol Shift* and =>
3. To insert a space, type *Symbol Shift* and <=.
4. To invoke the command procedure (see below) type *Caps Shift* and *Edit*.

These are the only single key functions. There are additional commands available. These are entered by first pressing *Edit* and then, in response to the prompt *Command?*, typing one of the following words:

Print	Print the file on the ZX printer (Press any key to stop)
Clear	Clear the text file and start again.
Load	Load a text file from tape
Save	Save a file on tape.
Find	Find a specified word in the file and display from it
Help	Display all editing commands/functions.

Other points to note are:

When typing or moving the cursor around the screen, the displayed text will scroll in the appropriate direction when necessary.

Commands may be typed in upper or lower case. All keys auto repeat.

```
   1 REM
  10 REM ************************
  18 REM *                      *
  20 REM *    SPECTRUM          *
  22 REM *    SCREEN EDITOR/    *
  24 REM *    WORD PROCESSOR    *
  26 REM *                      *
  28 REM *    © R.A.JONES       *
  30 REM *                      *
  32 REM *    28th NOV 1983     *
  34 REM *                      *
  40 REM *                      *
  42 REM ************************
  44 REM * Issue 1.0 28/11 83   *
  46 REM ************************
  48 REM
  50 REM
  
  80 LET size=3200
  97
  98 REM [illegible]
  99
 100 DIM f$(size)
 110 LET start=1
 120 CLS : PRINT AT 5,0; [illegible]
 130 PRINT AT 10,0;"   PRESS  EDI
T  AND THEN TYPE   HELP  FOR
 INSTRUCTIONS": PRINT AT 15,0;"
 Press any key to start": PAUSE
0: CLS
 140 LET x=0: LET y=0
 150 PRINT f$(start TO start+703
);
 152 GO SUB 5000: REM print curs
or
 154
 156 REM [illegible]
 158
 160 GO SUB 500: REM * get char
 165
 170 IF a$=CHR$ 7 THEN GO SUB 40
00: GO TO 160: REM * command
 175
 180 IF a$>=" " AND a$<=CHR$ 127
 THEN GO SUB 2000: GO TO 160: RE
M * print character
 185
 190 IF a>=8 AND a<=11 THEN GO S
UB 3000: REM * cursor key
 195
 200 IF a=199 OR a=200 THEN GO S
UB 6500
 300 GO TO 160
 493
 494 REM [illegible]
 495 REM ** SUBROUTINES **
 496 REM [illegible]
 497
 498 REM [illegible]
 499
 500 REM IF INKEY$<>"" THEN GO T
O 500
    REM *include line 500 if no
        auto repeat is required
 
 510 PAUSE 0
 520 LET a$=INKEY$
 530 LET a=CODE a$
 540 BEEP .005,0
 550 RETURN
1197 REM
1198 REM [illegible]
1199 REM
1200 INPUT , "Input string ",a$
1210 FOR i=start TO size-LEN a$
1220 IF f$(i TO i-1+LEN a$)=a$ T
HEN LET start=i: LET x=0: LET y=
0: CLS : PRINT f$(start TO start
+703): RETURN
1230 NEXT i
1240 RETURN
1297
1298 REM [illegible]
1299
1300 PRINT #0;AT 0,0; FLASH 1;"P
ress any key to abort": IF INKEY
$<>"" THEN GO TO 1300
1305 FOR i=1 TO size STEP 32
1310 LPRINT f$(i TO i+31);
1315 REM include this line if
double line spacing is required
LPRINT CHR$ 13
1320 IF INKEY$<>"" THEN GO TO 13
40
1330 NEXT i
1340 PRINT #0;AT 0,0;"
1350 RETURN
1997
1998 REM [illegible]
1999
2000
2010 LET f$(start+x+(y*32))=a$
2020 PRINT AT y,x;a$
2030 GO SUB 2500: REM * inc x
2040 PRINT AT y,x; PAPER 4;SCREE
N$ (y,x)
2050 RETURN
2497
2498 REM [illegible]
2499
2500 PRINT AT y,x;SCREEN$ (y,x)
 REM * print over cursor
2510 LET x=x+1
2520 IF x>=32 THEN LET x=0: GO S
UB 2600: REM * inc y
2530 GO SUB 5000: REM print cursor
2540 RETURN
2597
2598 REM [illegible]
2599
2600 PRINT AT y,x;SCREEN$ (y,x)
 REM print over cursor
2610 LET y=y+1
2620 IF y<22 THEN GO TO 2800
2625 LET y=21
2630 LET start=start+32
2640 IF start>size-704 THEN LET
start=size-704
2650 CLS : PRINT f$(start TO sta
rt+703)
2660 GO SUB 5000: REM print curs
or
2670 RETURN
2697
2698 REM [illegible]
2699
2700 PRINT AT y,x;SCREEN$ (y,x)
2710 LET x=x-1
2720 IF x<0 THEN LET x=31: GO SU
B 2800: REM dec y
2730 GO TO 5000: REM print curso
r
2740 RETURN
2797
2798 REM [illegible]
2799
2800 PRINT AT y,x;SCREEN$ (y,x)
2810 LET y=y-1
2820 IF y>=0 THEN GO TO 2860
2830 LET y=0: LET start=start-32
2840 IF start<1 THEN LET start=1
2850 CLS : PRINT f$(start TO sta
rt+703)
2860 GO SUB 5000: REM print curs
or
2870 RETURN
2897
2898 REM [illegible]
2899
3000 IF a=8 THEN GO SUB 2700: RE
TURN
3010 IF a=9 THEN GO SUB 2500: RE
TURN
3020 IF a=10 THEN GO SUB 2600: R
```

Continued on page 30

```
ETURN
3850 IF a=11 THEN GO SUB 2800  R
ETURN
3997
3998 REM [illegible]
3999
4000 INPUT "Command? ", LINE a$
4010 IF a$="print" OR a$="PRINT"
 THEN GO SUB 1300: RETURN
4020 IF a$="clear" OR a$="CLEAR"
 THEN RUN
4030 IF a$="find" OR a$="FIND" T
HEN GO SUB 1000: RETURN
4040 IF a$="load" OR a$="LOAD" T
HEN INPUT "File name? ";a$: LOAD
 a$ DATA f$(): RETURN
4050 IF a$="save" OR a$="SAVE" T
HEN INPUT "File name? ",a$: SAVE
 a$ DATA f$(): RETURN
4060 IF a$="HELP" OR a$="help" T
HEN GO SUB 5600
4490 RETURN
4997
4998 REM [illegible]
4999
5000 PRINT AT y,x; PAPER 4;SCREE
N$ (y,x): RETURN
5497 REM
5498 REM [illegible]
5499 REM
5500 IF a=200 THEN LET f$(start+
x+(y*32)+1 TO size)=f$(start+x+(
y*32) TO size): LET f$(start+x+(
y*32))=" ": GO TO 5520
5510 IF a=199 THEN LET f$(start+
x+(y*32)-1 TO size)=f$(start+x+(
y*32) TO size)+" ": GO SUB 2700:
 GO TO 5520
5520 CLS : PRINT f$(start TO sta
rt+703)
5530 GO SUB 5000: REM print curs
or
5540 RETURN
5597 REM
5598 REM [illegible]
5599 REM
5600 CLS
5610 PRINT "[illegible]
[illegible]"
5620 PRINT
5630 PRINT " KEY        FUNCTION
5640 PRINT "______________________
______________"
5645 PRINT
5650 PRINT " <=         DELETE CHA
RACTER                BEHIND CUR
SOR AND MOVE          TEXT UP 1
SPACE"
5660 PRINT
5670 PRINT " =>         INSERT A B
LANK AT THE           CURSOR POS
ITION"
5680 PRINT
5690 PRINT " ARROW      MOVE THE C
URSOR IN    KEYS      DIRECTION
OF THE ARROW"
5700 PRINT
5710 PRINT " EDIT       INPUT COMM
AND"
5720 PRINT : PRINT : PRINT
5730 PRINT " Press any key to co
ntinue."
5740 PAUSE 0
5750 CLS
5760 PRINT "[illegible]
[illegible]"
5770 PRINT
5780 PRINT " COMMAND  ACTION
5790 PRINT "______________________
______________"
5800 PRINT
5810 PRINT " PRINT    PRINT THE
FILE"
5820 PRINT
5830 PRINT " CLEAR    CLEAR THE
WHOLE FILE"
5840 PRINT
5850 PRINT " LOAD     LOAD A FIL
E FROM TAPE"
5860 PRINT
5870 PRINT " SAVE     SAVE A FIL
E ON TAPE"
5880 PRINT
5890 PRINT " FIND     FIND A STR
ING (WORD)            AND DISPLA
Y FROM THERE"
5900 PRINT : PRINT
5910 PRINT " These commands shou
ld be               entered after press
ing EDIT"
5920 PRINT
5930 PRINT " Press any key to co
ntinue": PAUSE 0
5940 CLS : PRINT f$(start TO sta
rt+703)
5950 GO SUB 5000
5990 RETURN
8997
8998 REM [illegible]
8999
9000 STOP
9999 SAVE "wp": STOP
```



AT LAST 1 TAPE 2 MACHINES

COMMODORE 64 VIC 20







MINIPEDES

It is the height of summer and the garden is buzzing with bees and bugs Minipede a mutant mushroom monster advances relentlessly towards you devouring everything in its path 15 screens of fast and furious action make Minipedes a real challenge to the arcade enthusiasts

Commodore 64 VIC 20 16K
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Experience the thrills of the gambling centre of the world from the comfort of your own armchair Both versions include features such as spinning reels held number-feature nudges gamble/collect spin score and hi score The Commodore 64 version has additional features nudge reward lucky 3 step a win and hi score tables

As with any arcade machine the odds are stacked against you!

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Tom is trapped in a scrolling maze populated by loathsome creatures, guardians of the lost treasures of the Magezem Six separate screens five levels of difficulty and four player option provide an exciting challenge for the whole family Another stunner from the author of **BONGO!**

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COMMODORE 64 VIC 20

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A global option

*This useful utility by **Martin Amsss** provides a string search facility*

One useful feature that is sadly missing from the QL is the facility to search for and/or replace a certain string contained in a program.

The following program implements this feature allowing you to search for and replace a chosen string contained in a selected program stored on a microdrive. There are three options to choose from.

The first is a search only option. The second goes one stage further and allows you to replace your selected string if required. The third is a global replace option which will replace all occurances of the selected string.

When either option 2 or 3 is chosen then a new program with the alterations will be stored in the file *File.Bak*. At the beginning, any existing file with the name *File.Bak* will be deleted. When the search is completed you can copy the file *File.Bak* to your own program name if you are satisfied with it using the *Copy* command.

Program Notes

Lines 115 to 225

This repeat loop contains the main menu. You are requested to enter your chosen option number (1 to 3). Any other number will result in the program ending.

You will then be asked to enter the string that is to be searched for. If you selected options 2 or 3 you will then be asked to enter the new string that will replace it.

Finally you will need to enter the file that is to be searched, in the format *Mdv? Name_of_File*, where *?* is the Microdrive number and *Name of File* is the name of the file stored on microdrive.

Lines 230 to 310

The procedure *Search* is defined. This procedure will search line by line for any occurence of your selected string. When a line is found it will be displayed on the screen and the prompt *Any More (Y/N)?* displayed. Answer *Y* to continue the search or *N* to return to the menu.

Lines 315 to 475

The procedure *Search.Replace* is defined. This procedure is similar to *Search* except that when a line is found containing the selected string you will be asked *Replace ? (Y/N)* after the line has been displayed on the screen. Answering *Y* will replace the string in this line with that of the new data entered at the beginning.

After entering *Y* or *N*, the program line will be checked further to see if there are any more occurences of the selected string. If there are you will be asked again whether or not to replace it.

Once the line is completed the program will continue checking the next line. When the end of the file is reached you will be returned to the menu.

Lines 480 to 660

The procedure *Global* is defined. This procedure works in the same way as the *Search.Replace* procedure except that the user is not asked whether or not to replace individual occurences of the selected string. All occurences are automatically replaced. As each line is processed by the program it is displayed on the screen.

A problem with the QL is that when a line of data is inputted from a file it must not be longer than approx 125 characters, otherwise the *Buffer full* error will be given.

Many program lines are often larger than 125 characters and therefore this program would not necessarily work with all program files. So to avoid this problem, data is inputted one character at a time using the *Inkey$* keyword. Although this will resolve this problem, it does mean that it slows the program down.

The procedure *line.Input* (Lines 640 to 675) inputs the data from the file one character at a time, searching for the control character *Chr$(10)* which represents the end of each particular line of data.

However, should you be sure that your program does *not* contain any lines over 125 characters, then lines 265 365 and 530 can be replaced by the line *Input #11, Line$*, which will enter data from the file line by line and therefore speed the program up considerably.

```
100 REMark SEARCH & REPLACE
105 REMark © 1984 MARTYN AMESS
110 INK 7   PAPER 0
115 REPeat MENU_LOOP
120 CLS #0 CLS #1
125 REMark MAIN MENU
130 AT 2 10 PRINT "MAIN MENU" AT 3 10:PRINT "---------"
135 AT 8 0 PRINT "Enter required option " AT 10 5 PRINT
    "1. SEARCH ONLY" AT 12,5 PRINT "2. SEARCH & REPLACE"
    AT 14 5 PRINT "3. GLOBAL REPLACE" AT 16 2 INPUT 'EN
    TER NUMBER ";OPTION
140 IF OPTION < 1 OR OPTION > 3 THEN EXIT MENU_LOOP
145 CLS
150 IF OPTION <> 1 THEN DELETE MDV1_FILE_BAK
155 AT 10 5 PRINT "ENTER STRING TO SEARCH FOR
    AT 12 7 INPUT SEARCH_STRING$
160 IF OPTION= 2 OR OPTION =3 THEN
165 AT 12 5 INPUT "ENTER NEW STRING " NEW_STRING$
170 OLD_LEN=LEN(SEARCH_STRING$)   NEW_LEN=LEN
    (NEW_STRING$)
175 END IF
180 IF SEARCH STRING$ ="" THEN STOP
185 CLS  AT 10.1 PRINT "ENTER FILE NAME TO SEARCH" AT
    11.5 PRINT "E.G  MDV1_TEST
    _BAG'" AT 13 8 INPUT FILE_NAME$
190 CLS
195 SELect ON OPTION
200 =1   SEARCH
205 =2   SEARCH_REPLACE
210 =3   GLOBAL
215 END SELect
220 END REPeat MENU_LOOP
225 STOP
230 REMark SEARCH FOR A STRING
235 DEFine PROCedure SEARCH
240 AT 0,10 PRINT "SEARCH ONLY":AT 1.10
    PRINT "-----------"
245 OPEN #10 FILE_NAME$
250 REPeat SEARCH_LOOP
255 AT 10.10 PRINT "Searching. ."
260 IF EOF(#10) THEN EXIT SEARCH_LOOP
265 LINE INPUT
270 SET=SEARCH_STRING$ INSTR LINE$
275 IF SET THEN
280    SCR_CLEAR AT 10,0:PRINT LINE$
285    AT 16 0 INPUT "ANY MORE (Y/N) ?";QUES$
290 IF QUES$="N" THEN EXIT SEARCH_LOOP
295 SCR_CLEAR
300 END IF
305 END REPeat SEARCH_LOOP
310 CLOSE #10 END DEFine
315 REMark SEARCH AND REPLACE A GIVEN STRING
320 DEFine PROCedure SEARCH_REPLACE
    PRINT "---------------"
325 AT 0 10:PRINT "SEARCH & REPLACE":AT 1,10
330 OPEN #10,FILE_NAME$
335 OPEN_NEW #11 MDV1_FILE_BAK
340 SCR_CLEAR
345 REPeat LOOP
350 AT 10 10 PRINT "Searching..."
355 IF EOF(#10) THEN EXIT LOOP
360 SET=0
365 LINE_INPUT
370 SET=SEARCH_STRING$ INSTR LINE$
375 IF SET THEN LINE_FOUND
380 PRINT #11 LINE$
385 END REPeat LOOP
390 CLOSE #10 : CLOSE #11
395 END DEFine SEARCH_REPLACE
400 DEFine PROCedure LINE_FOUND
```

```
405 SCR_CLEAR
410 AT 10 0 PRINT LINE$
415 AT 15,0 INPUT "REPLACE ? (Y/N) ";QU$
420 SCR_CLEAR
425 IF QU$ <> "Y" THEN RETurn
430 NEW_LINE$=FILL$(" ",((LEN(LINE$) +
    (NEW_LEN-OLD_LEN))))
435 NEW_LINE$(1 TO (SET-1)) = LINE$(1 TO (SET-1))
440 NEW_LINE$(SET TO)=NEW_STRING$
445 IF (SET + NEW_LEN) > LEN(LINE$) THEN GO TO 235
450 NEW_LINE$((SET + NEW_LEN) TO)=LINE$((
    SET+OLD_LEN) TO)
455 LINE$=NEW_LINE$
460 SET1=SET:SET=SEARCH_STRING$ INSTR LINE$
    ((SET+NEW_LEN) TO)
465 IF SET <> 0 THEN SET=SET+SET1+OLD_LEN
470 IF SET THEN GO TO 235
475 END DEFine
480 REMark GLOBAL SEARCH & REPLACE
485 DEFine PROCedure GLOBAL
490 AT 0 10 PRINT 'GLOBAL REPLACE':AT 1 10:
    PRINT "______________"
495 AT 3 2 PRINT "Processing line "
500 OPEN #10 FILE_NAME$
505 OPEN_NEW #11,MDV1_FILE_BAK
510 SCR_CLEAR
515 REPeat GLOBAL_LOOP
520 IF EOF(#10) THEN EXIT GLOBAL_LOOP
525 SET=0
530 LINE_INPUT
535 SET=SEARCH_STRING$ INSTR LINE$
540 IF SET THEN AMEND_LINE
545 PRINT #11,LINE$
550 SCR_CLEAR AT 10,0 PRINT LINE$
555 END REPeat GLOBAL_LOOP
560 CLOSE #11 : CLOSE #10
565 END DEFine
570 DEFine PROCedure AMEND_LINE
575 NEW_LINE$=FILL$(" ",((LEN(LINE$) +
    (NEW_LEN-OLD LEN))))
580 NEW_LINE$(1 TO (SET-1))=LINE$(1 TO (SET-1))
585 NEW_LINE$(SET TO)=NEW_STRING$
590 IF (SET + NEW_LEN) > LEN(LINE$) THEN GO TO 235
595 NEW_LINE$((SET + NEW_LEN) TO)=LINE$
    ((SET+OLD_LEN) TO)
600 LINE$=NEW_LINE$
605 SET1=SET SET=SEARCH_STRING$ INSTR LINE$
    ((SET+NEW_LEN) TO)
610 IF SET <>0 THEN SET=SET+SET1+OLD_LEN
615 IF SET THEN GO TO 320
620 END DEFine
625 DEFine PROCedure SCR_CLEAR
630 AT 3,0:CLS 2
635 END DEFine SCR_CLEAR
640 DEFine PROCedure LINE_INPUT
645 LINE$=""
650 REPeat LOAD_LOOP
655 A$=INKEY$(#10)
660 IF A$=CHR$(10) THEN EXIT LOAD_LOOP
665 LINE$=LINE$ & A$
670 END REPeat LOAD_LOOP
675 END DEFine LINE_INPUT
```

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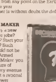
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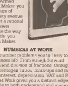
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A sign of the times

Reduce your multiplication error on the CBM 64 with this utility program by ***Steve McCarthy***

The following routine for long multiplication will allow numbers of any length to be multiplied together and an answer produced which omits both rounding and any E format. Further to this it has been discovered that the function on the CBM 64 sometimes results in inaccurate results and again is limited by the length of a number which may be handled.

The 'raising a number to a power' inaccuracies may be overcome using the formula *Print Int((AN)+ 5)*, but there is still the limitation of the numbers lengths The subroutine below overcomes this.

Program 1 is an example program merely to pass values over to the subroutines. As it stands, the length of numbers is limited by the length of line accepted by the Input command, but if the subroutines are incorporated in another program, the size of number is limited only by the space available to the relevant strings within the Commodore's memory.

Program One

The two numbers to be multiplied are passed to the subroutine in *A$* and *B$*.

WN denotes whether these are both whole numbers or not.

The answer is returned in *Z$*.

N, *I* and *J* are control loop variables.

Temporary variables are *E*, *N1 N2*, *A*, *B C X$ Y$* and *E$*

Neg is a signal which flags whether the result will be negative (1) or positive (0)

Nd is a value denoting the number of decimal places in the answer

Program 2

In addition to the above, *Po* holds the power the number is to be raised to

P is a control loop variable

P$ is a temporary variable

Input rules

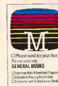
For long multiplication, either integers or decimals, positive or negative may be input. The same applies to the number to be raised to a power. However, the power can only be positive

Line No.

10-180	Example program to collect and pass on input values
1000	Check to see if either input value is 0 If it is return 0 in answer
1005	Zeroise variables and check if both numbers are integers.
1010-1095	Find decimal point(s) adjust strings and signal a decimal answer
1100-1106	Check for negative value of input and signal if found.
1108-1240	Multiplication routine
1250-1270	Remove leading zeroes from answer
1290	Adjust format of answer if not whole number.
1300	Add leading zero to answer if it is a decimal less than 1
1310-1320	Add negative sign to answer if flagged and return.
2000-2020	Subroutine for handling powers.

```
5 REM*********PROGRAM 1.......EXAMPLE INPUT**********
10 PRINT"PRESS 1 FOR POWER, 2 FOR LONG MULTIPLICATION."
20 GETK$ IFK$="2"THEN100
30 IFK$<>"1"THEN20
40 PRINT"ENTER NUMBER TO BE RAISED " INPUTP$
50 PRINT"ENTER POWER " INPUTPO
60 PRINT"INPUT 1 IF NUMBER IS AN INTEGER. ELSE 0" INPUTWN
70 IFWN<>1ANDWN<>0THEN60
80 GOSUB2000 GOTO150
100 PRINT"ENTER FIRST NUMBER " INPUTA$
110 PRINT"ENTER SECOND NUMBER " INPUTB$
120 PRINT"INPUT 1 IF BOTH ARE WHOLE NOS., ELSE 0" INPUTWN
130 IFWN<>1ANDWN<>0THEN120
140 GOSUB1000
150 PRINT"ANSWER= " PRINTZ$
160 PRINT"PRESS ANY KEY FOR NEXT NUMBERS"
170 GETK$ IFK$=""THEN170
180 GOTO10
999 REM********PROGRAM 2.......LONG MULTIPLICATION
    SUBROUTINE**********
1000 IFA$="0 ORB$="0"THENZ$="0" RETURN
1005 E=0 Z$="" ND=0 IFWN=1THEN1100
1010 FORN=1TOLEN(A$
1020 IFMID$(A$,N,1)="."THEN1040
1030 NEXTN GOTO1060
1040 ND=LEN(A$)-N
1050 A$=LEFT$(A$,N-1)+RIGHT$(A$,LEN(A$)-N)
1060 FORN=1TOLEN(B$)
1070 IFMID$(B$,N,1)="."THEN1090
1080 NEXTN GOTO1100
1090 ND=ND+LEN(B$)-N
1095 B$=LEFT$(B$,N-1)+RIGHT$(B$,LEN(B$)-N)
1100 NEG=0 N1=0 N2=0
1102 IFLEFT$(A$,1)="-"THENN1=1 A$=RIGHT$(A$,LEN(A$)-1)
1105 IFLEFT$(B$,1)="-"THENN2=1 B$=RIGHT$(B$,LEN(B$)-1)
1106 IF((N1=1 AND(N2<>1))OR((N2=1)AND(N1<>1))THENNEG=1
1108 A=LEN(A$) B=LEN(B$)
1110 FORI=ATO(1-B)STEP-1
1120 FORJ=BTO1STEP-1
1130 C=I+B-J
1140 IF C>A THEN1200
1150 IF C<1 THEN1190
1160 X$=MID$(A$,C,1)
1170 Y$=MID$(B$,J,1)
1180 E=E+VAL(X$)*VAL(Y$)
1190 NEXTJ
1200 E$=STR$(E)
1210 Z$=RIGHT$(E$,1)+Z$
1220 IFLEN(E$)<=2 THEN E=0 GOTO1240
1230 E=VAL(LEFT$(E$,LEN(E$)-1))
1240 NEXTI
1250 IFLEFT$(Z$,1)<>"0"ORLEN(Z$)<=ND THEN1280
1260 Z$=RIGHT$(Z$,LEN(Z$)-1)
1270 GOTO1250
1280 IF ND=0 THEN1310
1290 Z$=LEFT$(Z$,LEN(Z$)-ND)+"."+RIGHT$(Z$,ND
1300 IFLEFT$(Z$,1)="."THENZ$="0"+Z$
1310 IFNEG=1THENZ$="-"+Z$
1320 RETURN
1999 REM******RAISING TO A POWER CONTROL
    SUBROUTINE*********************
2000 Z$=P$
2010 FORP=1TOPO-1
2020 B$=Z$ A$=P$ GOSUB1000 NEXTP RETURN
```

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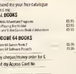


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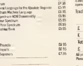
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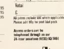
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Random waves

Improve your sounds on the Dragon using this machine code routine by ***Brian Cadge***

The Dragon's *Sound* and *Play* commands may be quite adequate for making the odd beep and playing the odd tune, but the lack of white noise facilities and the interference heard on higher pitched notes makes it impossible to create good sound effects in your own Basic games. However, it is quite simple to overcome these two main problems.

The interference is caused by the Dragon's IRQ program (the program that interrupts Basic 50 times a second to update the value of timer etc), so turning it off whilst producing sound eliminates this. Normal notes are produced by a square wave sound, that is turning the speaker on and off at regular intervals. To produce white noise we simply produce a random wave—taking values from the Rom at high speed will produce this effect. This is especially useful for producing gunshot and explosion type effects.

The program listed here allows you to define your own sound effects and produce them with a single command. Once installed the machine code program can be used in your own programs.

To input the program, type in the Basic loader program, taking care with the Data statements. When run, the program will either tell you that you have made an error entering the data statements (in which case you should check through the listing and correct the mistakes) or inform you that the program has loaded into reserved Ram successfully. An Assembler listing is also included.

Sounds are defined in strings, such as *A$*, to produce the sound anywhere in your program you add the line, *XX=USR0(VARPTR(A$))*. The string does not have to be *A$*, it can be any string variable, but it cannot be a constant (eg, *USR0(VARPTR("ABC"))*.

The commands used in the string allow you to do the following:

V — Sets initial volume (0-255)
v — Sets rate of change of volume (−128 to +128)
A — Sets initial Frequency (0-5000)
a — Sets rate of change of frequency (−128 to +128)
C — Sets number of cycles to output (0-65535)
L — Sets lowest frequency value (100-5000)
W —Sets square wave/white noise flag

You do not have to set up every parameter in each string, as if a parameter is not changed, the last value used will be assumed. The string is composed as follows. Capital *V* indicates a volume setting, whilst an inverse *V* (shown above as *v*) indicates a rate of change of volume value. These are followed by a character whose *ASCII* code is the required setting, so to set the initial volume to 150, you would use *"V"+CHR$(150)*. The rate of change of volume can be either positive so the *ASCII* value following the inverse *V* would be 0 to 128, or negative, in which case the *ASCII* code is 256 minus value. So a value of minus three would give 253. To set the initial frequency, a capital *A* is followed by two characters whose 16 bit value is the initial setting. So to set this to 520, you would use *"A"+CHR$(2)+CHR$(8)*—that is 2×256=512+8=520. To set rate of change of frequency use an inverse *A* followed by the value, as used for volume.

The number of cycles to be output is set by a capital *C* followed by two characters as for the frequency. The higher this number is the longer the sound will last. The sound type is set by using *W* followed by either *CHR$(0)* for normal noise or *CHR$(1)* for white noise. When the frequency is changing, if it hits zero or the lowest allowed value (ie, the highest number allowed) the sound will 'bounce' and alter direction. You can set this highest value with the *L* command, again followed by two characters.

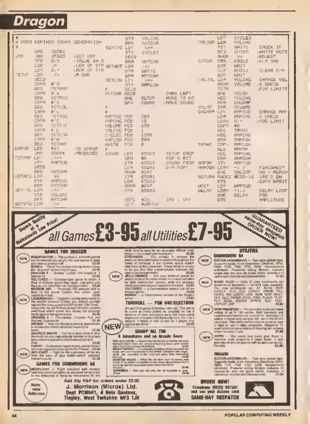
All this may sound complicated, but it is really very simple once you start experimenting. If the string you enter is invalid in any way, a new error message *?SD ERROR* is produced. A couple of examples to try out are:

A$= "V" + CHR$(255) + "v" + CHR$(1) + "A" + CHR$(0) + CHR$((200) + "a" + CHR$(15) + "C" + CHR$(4) + CHR$(20) + "L" + CHR$(2) + CHR$(0)
A$= "v"+CHR$(5)+"a"+CHR$(1)
A$= "W"+CHR$(1)

Remember that lower case letters in the above examples should be entered on the Dragon as inverse letters, obtained using *Shift-0*.

```
5 ' BASIC LOADER PROGRAM
10 CLEAR200 32500
20 FOR I=0 TO 235:READ A$:V=VAL("&H"+A$):CS=CS+V POKE 32501+I,V:NEXTI
30 IF CS<>23918 THEN PRINT"ERROR IN DATA STATEMENTS!":SOUND1,1:STOP
40 DEF USR0=32501
50 PRINT"CODE LOADED - USE XX=USR0(VARPTR(>$))"
60 A$="v"+CHR$(5)+'a"+CHR$(1)
70 XX=USR0(VARPTR(A$))
80 NEW
100 DATA BD,B8,27,1F 01,E6 84,AE,02,A6,80,5A,81,41,27,1D,81,61,27,23,81,56,27,26
,81,76 27,29,81,43,27,2C,81,4C,27,39,81,57,27,2E
110 DATA C6,11,7E 83 44,10,AE,81,10,0F,7F,5F,5A,20,2E,A6,80,B7,7F 61,20,27,A6 80
,B7,7F,62,20 20,A6,80,B7,7F,63,20,19,10 AE,81
120 DATA 10 BF,7F,64,5A,20,0F,A6,80,B7,7F 68,20,08,10,AE,81,10,BF,7F,66,5A,5A,26
,A1,20,0A,00,C6 0F,FF,01,04,B0,01,F4,00
130 DATA 86,FF,23,0A,08 B7,FF,23,86,FF,01,84,F7,B7,FF,01,86,FF,03,84,F7,B7,FF,03
,1A,10 CE,9C,40,BE,7F,64,86 7F,62
140 DATA 7D,7F,66,27,02 A4 C0,B7,FF,20,8D,40,7F,FF,20,8D,30,B6,7F,63 B0,7F,62,4D
,26,05,70,7F,63,20,03,B7,7F 62
150 DATA 10,BE 7F 5F,66,7F 61,31,A6,10,8C,00,00,22,05,70 7F,61,20,0F,10,BC,7F,66
,23,05,70,7F,61,20,04,10,BF,7F,5F
160 DATA 30,1F,26,64,1C,EF,39,10 8E,7F,5F,31,3F,26,FC,39
```

Continued over the page



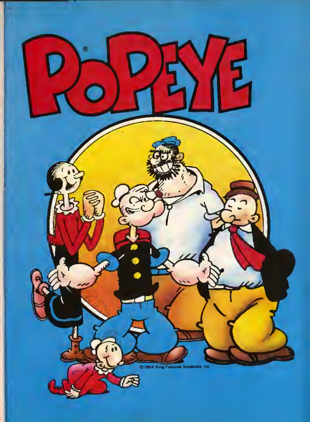
Dragon

```
*
* USER DEFINED SOUND GENERATION
*
        ORG   32501
USR     JSR   35623    ;GET USR
        TFR   D,X      ;VALUE IN X
        LDB   ,X       ;LEN OF STR
        LDX   2,X      ;ADR OF STR
SETUP   LDA   ,X+      ;A CHR
        DECB
        CMPA  #'A
        BEQ   SETAMP
        CMPA  #'+
        BEQ   SETACG
        CMPA  #'V
        BEQ   SETVOL
        CMPA  #'-
        BEQ   SETVCG
        CMPA  #'C
        BEQ   SETCYC
        CMPA  #'L
        BEQ   SETLOW
        CMPA  #'W
        BEQ   SETWHT
ERROR   LDB   #17      ;SD ERROR
        JMP   33604    ;PRODUCED
SETAMP  LDY   ,X++
        STY   AMPTUD
        DECB
        BRA   NXTCHR
SETACG  LDA   ,X+
        STA   AMPCHG
        BRA   NXTCHR
SETVOL  LDA   ,X+
        STA   VOLUME
        BRA   NXTCHR
SETVCG  LDA   ,X+
        STA   VOLCHG
        BRA   NXTCHR
SETCYC  LDY   ,X++
        STY   CYCLES
        DECB
        BRA   NXTCHR
SETWHT  LDA   ,X+
        STA   WHITE
        BRA   NXTCHR
SETLOW  LDY   ,X++
        STY   AMPLOW
*       DECB
NXTCHR  DECB           CHRS LEFT
        BNE   SETUP    MORE TO DO
        BRA   SOUND    ;MAKE SOUND
*
*
AMPTUD  FDB   200
AMPCHG  FCB   15
VOLUME  FCB   255
VOLCHG  FCB   1
CYCLES  FDB   1200
AMPLOW  FDB   500
WHITE   FCB   0
*
SOUND   LDA   65315    SETUP CHIP
        ORA   #8       FOR 6 BIT
        STA   65315    ,SOUND FROM
        LDA   65281    D/A PORT
        ANDA  #247
        STA   65281
        LDA   65283
        ANDA  #247
        STA   65283

        ORCC  #16      IRQ OFF
        LDY   #AMPTUD
        LDY   CYCLES
SNLOOP  LDA   VOLUME
        TST   WHITE    CHECK IF
        BEQ   OUTDA    ;WHITE NOIS
        ANDA  U+       ;ADJUST
OUTDA   STA   65312    ;D/A SND
        BSR   WAIT
        CLR   65312    CLEAR D/A
        BSR   WAIT
CHLVOL  LDA   VOLCHG   CHANGE VOL
        ADDA  VOLUME   ,& CHECK
        TSTA           ;FOR LIMITS
        BNE   VOLOK
        NEG   VOLCHG
        BRA   CHGAMP
VOLOK   STA   VOLUME
CHGAMP  LDY   AMPTUD   CHANGE AMP
        LDA   AMPCHG   & CHECK
        LEAY  A,Y      ;FOR LIMIT
        CMPY  #0
        BHI   TRYHI
        NEG   AMPCHG
        BRA   AMPDON
TRYHI   CMPY  AMPLOW
        BLS   AMPOK
        NEG   AMPCHG
        BRA   AMPDON
AMPOK   STY   AMPTUD
AMPDON  LEAX  -1,X     FINISHED?
        BNE   SNLOOP   NO - AGAIN
RETURN  ANDCC #255-16  ;IRQ'S ON
        RTS            ;GOTO BASIC
WAIT    LDY   AMPTUD
DELAY   LEAY  -1,Y     DELAY LOOP
        BNE   DELAY    FOR
        RTS            AMPLITUDE
```



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Guess what's for dessert?

Pack up your BBC B and traval (if you dare) to Cannibal Island by ***Glynne Evans***

This is a simple adventure game written in Basic on the BBC micro in mode 7. Although it does not have many locations the program is designed so more data can be added.

The scenario is a desert island in the tropics and the object is to find the lost treasure and return to your ship. The program understands most of the Basic commands.

North, west, south, east, up, down can all be abbreviated to the first letter. *Take, get, drop swim, jump, dig, unlock, look* are all self-explanatory.

To obtain a list of the objects being carried up to a maximum of three type *Inv*. All commands must be capitals and most can be abbreviated to the first three letters.

Program Notes

10 to 100	Instructions and initialise variables
110 to 170	Main program loop calling other procedures
180 to 230	End of game
300 to 380	*Defprocreadin* reads in object data
390 to 440	*Defprocobjects* prints objects at location if any
450 to 780	*Defprocinput* gets input and acts accordingly
780 to 800	*Defprocsep* separates string
810 to 890	*Defproctake* take routine
900 to 960	*Defprocdrop* drop routine
970 to 990	*Defprocinv* inventory routine
1000 to 1780	Data for locations and exits in the form of description string then six pointers to other room numbers NSWEUD

```
10 MODE7
30 PRINTCHR$(141);CHR$(132);"    Cannibal Island"
40 PRINTCHR$(141);CHR$(129);"    Cannibal Island"
50 PRINT "You have been shipwrecked on a desert island
   while searching for treasure By sheer coincidence this
   is the very island Blackbeard left his fortune on
   The crew have mutinied and fled in fear of the
   dangerous ";
60 PRINT"cannibals who inhabit  the island ";PRINT "You
   alone continue the search for the   fortune"
70 B$=GET$
80 CLS
90 ENVELOPE1,1,0,0,0,0,0,0,127,0,0,-1,126,126
100 L=1:E=0:DIM O$(9,1),C$(4,1) O(9),C(9):PROCREADIN:
   PTD=0:CA 1:LYB=1:BM=0:LOC =1:FL=0:PLI =0
110REPEAT
120 IF PTD=0 PROCDESCRIBE:PRINT Z$:PROCOBJECTS:PTD=1
130
140PROCINPUT:PLK=PLK+1
150 IF O(2) 99 AND L 25 THEN PRINT"With amazing initiative
   you lay the driftwood across the gap and jump across
   just in time to see the wood go up in flames'Dripping
   stuff eh'":L=28:O(2)=96
160 IF L=2 AND O(1)=99 THEN GOTO 190
170UNTIL E=1
180 IF O(1) >99 PRINT"You are not with us any longer
   sadly'":PRINT  "Another game?  B$=GET$:IFB$  "Y
   "THENEND ELSE RUN
190 CLS:PRINTCHR$(141);CHR$(132);"Well done '"
200PRINTCHR$(141);CHR$(129);"Well done '"
210 PRINT  "You have successfully completed the
   adventure in ";PLK;" actions'"
220 PRINT"You are a HERO and return with your
   treasure to England and live happily    ever after
   in a life of luxury'"
230 END
240DEFPROCREADIN
250FORA=1TO6:READO$(A,0),O$(A,1):NEXT
260DATA"a Beautiful Treasure Chest","CHEST","a piece of
   driftwood","DRIFTWOOD","a small bottle","BOTTLE","a
   large green parrot","PARROT","**Golden key**","KE YE",
   "a banana","BANANA","a spade","SPADE", an aqualung",
   "AQUALUNG"
270FORA 1TO8:READ O(A):NEXT
280ENDPROC
290DATA39,5,19,3,98,12,17,98
300DEFPROCDESCRIBE
310 RESTORE(L*20)+980
320READZ$,N,S,W,E,U,D
330 IFZ$="J"THENZ$="We are in jungle.There are paths going
    everywhere "
340 IFZ$="M"THENZ$="We are in a maze of rock formations
    which all look the same to me'"
350 IF L=20 AND BM=1 THEN Z$="There is a pile of rubble
    where the      witch doctor s hut was'"
360 IF CA=0 AND L=7 THEN Z$="Long John Lagoon
   A hole goes down into the ground'":D=23
370 IF CA=0 AND LOC=0 AND L=23 THEN Z$="We are in the
    tunnel.The door is open tothe north and light shines
    from above.":N=24
380ENDPROC
390DEFPROCOBJECTS
400PRINT"I can see"
410 A=0 FORB=1 TO 9 IF O(B)=L THEN PRINTO$(B,0):A=1
420 NEXT
430 IF A=0 THENPRINT"nothing else here."
440ENDPROC
450DEFPROCINPUT
460 INPUT"> I$:L$=LEFT$(I$,3)
470 IF L=21 AND L$="PUS" AND BM=0 THEN PRINT BAAAAAANNG
   '''":SOUND0,1,6,20:BM=1:O(8)=20:PTD=0:ENDPROC
480 IF L$= REA  AND L=22 THEN PRINT The message reads
   28 Feb 1901 I am dying...the natives have taken all
   my possessions....getting weak..that witch doctor...
   I'll show him   he took my aqualung...  :ENDPROC
490 IF L$= FIL  AND O(3) 99 AND L=21 AND FL=0 THEN FL=1:
   O$(3,0)="a bottle of water":PRINT"The bottle is now
   full. ":ENDPROC
500 IF L$="EMP" OR L$="POU" AND O(3)=99 THEN FL=0:O$(3,0)
   ="a small bottle":PRINT The bottle is now empty.
   ":PROCDROP:ENDPROC
510 IF L$="FIL" AND O(3)=99 AND L<>21 AND FL=0 THEN
   PRINT"You cannot reach the water' :ENDPROC
520 IF L$="SWI" AND L  8 THEN PRINT"You can t swim
   here.":ENDPROC
530 IF L$= SWI  AND L=8 AND O(8)  99 THEN PRINT"You
   start to swim but the water sucks   you down and
   you drown'(nasty'!":E 1:ENDPROC
540 IF L$="SWI" AND L=8 AND O(8) 99 THEN PRINT"Whooosh'
   You dive in and swim to the bottom.There you find a
   **Golden key**  :O(5)=99:O(8)=98:PTD=0:SOUND0,1
   ,4,5:ENDPROC
550 IF L$  INV  THEN PROCINV:ENDPROC
560 IF L$= UNL AND L 27 AND LOC=1 AND O(5)=99 THEN PRINT"
   The door swings open revealing a tunnel north'"
   LOC=0:PTD=0:ENDPROC
570 IF L$="HEL" THEN PRINT"What do you think this is,
   a giveaway?":ENDPROC
580IF L$="KIL" THEN PRINT Violence gets you
    nowhere ":ENDPROC
590 IF L$="JUM" AND L 3 THEN PRINT WA"    out below'":
   FOR J=255 TO 150 STEP  1:          :S,J 1:NEXT:FOR
   DEL=1TO860:NEXT:PRINT"SPLASH''":SOUND0,1,4,5:
   E 1:ENDPROC
600 IF O(7)=99 AND L$="DIG" AND L=7 AND CA=1 THEN PRINT
   "You dig furiously and find a hidden cavebelow  ":
   CA=0:PTD=0:ENDPROC
610 IF L$="DIG" AND O(7)  99 THEN PRINT"You can t dig
   without the spade'":ENDPROC
620 IF L$="DIG" AND O(7)=99 AND L 4 THEN PRINT You dig
   a hole in the deck and the ship sinks in a whirlpool
   of water'":E 1:ENDPROC
630 IF L$ "DIG" AND O(7)=99 AND L <7 THEN PRINT"You
   can t dig here to grounds too hard."
640 IF L$="NOR" OR I$="N" THEN IF N<>0 THEN L N:PTD=0:
   ENDPROC
650 IF L$="SOU" OR I$="S" THEN IF S<>0 THEN L=S:PTD=0:
   ENDPROC
660 IF L$="WES" OR I$="W" THEN IF W<>0 THEN L W:PTD=0:
   ENDPROC
670 IF L$ "EAS" OR I$="E" THEN IF E  0 THEN L=E PTD=0:
   ENDPROC
680 IF LEFT$(I$,2) "UP" OR I$ "U" THEN IF U<>0 THEN
   L=U:PTD=0:ENDPROC
690 IF L$="DOW" OR I$="D" THEN IF D<>0 THEN L=D:PTD=0:
   ENDPROC
700 IF I$="LOOK  THEN PROCDESCRIBE:PRINT Z$:PROCOBJECTS:
   ENDPROC
710 IF L$="TAK" OR L$="GET" THEN PROCSEP:IF AM=1
   PROCTAKE:ENDPROC
720IF L$="DRO" OR L$="THR" THEN PROCSEP IF SP=1
   PROCDROP:ENDPROC
730 IF L$ "NOR"ORL$="SOU"ORL$="WES"ORL$="EAS ORL$
   "DOW ORI$="UP"ORI$="U"ORI$ "N"ORI$="S"ORI$="D"ORI$=
   "N"ORI$="E"THENPRINT"I can t go that way old chap'":
   ENDPROC
740 PRINT"Don t understand old bean'
```

```
750 ENDPROC
760DEFPROCSEP:SP=0
770FORA=1TOLEN(I$):IFMID$(I$,A,1)=" "THENPS=A:SP=1
780 NEXT
790IFSP=0THENENDPROC
800P$=RIGHT$(I$,LEN(I$)-PS):ENDPROC
810DEFPROCTAKE
820OP=0:FOR A=1TO9:IFO(A)=99THENOP=OP+1
830NEXT:IF OP>2 THEN PRINT"You are carrying too much
     ":NH=0:ENDPROC
840NH=0
850 FORA=1TO9:IFLEFT$(P$,4)=LEFT$(O$(A,1),4) AND O(A)=L
     THEN NH=A
860 NEXT
870 IF NH=0 THEN PRINT"That ain t here ":ENDPROC
880 PRINT"O.K.":O(NH)=99
890 ENDPROC
900DEFPROCDROP
910 NH=0
920 FORA=1TO9:IFLEFT$(P$,4)=LEFT$(O$(A,1),4) AND
     O(A)=99 THEN NH=A
930NEXT
940 IF NH=0 THEN PRINT"I haven t got that!":ENDPROC
950 PRINT"O.K.":O(NH)=L
960ENDPROC
970DEFPROCINV:WE=0:PRINT"You have:":FORA=1TO9
   IF O(A)=99 THEN PRINTO$(A,0):WE=1
980 NEXT:IFWE=0 THEN PRINT"Nothing."
990 ENDPROC
1000DATA"We are in the hold of the ship It is dark and
     eerly.the only lightcoming from the open hatch above."
1010DATA0,0,0,0,2,0
1020DATA"This is the deck.From here you can see
  the jungle and the beach to the east.Theship is
  aground in shallow water The rigging looks climbable."
1030 DATA0,0,0,4,3,1
1040DATA"You climb the rigging with amazing agility and
   find the crows Nest The viewis incredible.The island
   is large and  snow tipped mountains can be seen in
   thedistance.There is a river to the East."
1050DATA0,0,0,0,0,2
1060DATA"There is sandy beach with a dense jungleto the
    east and a large sailing ship is aground on the reef
    offshore.The beach  continues north and south."
1070DATA6,5,2,9,0,0
1080DATA"The beach continues but the rocks are   larger
    There is a dark worn track leading east into the
    jungle Other pathsgo north and south."
1090DATA8,7,0,9,0,0
1100DATA"AH HAARR this be Hook Bay.The beach
    curves round to the north and back south"
1110DATA8,4,0,9,0,0
1120DATA"You smash your way through dense undergrowth and
    find the ancient cannibal ritual ground.A large totem
    pole sticks out of the centre of the clearing
    menacingly The earth is sandy and loose here."
1130 DATA5,0,0,0,0,0
1140DATA"Dead man creek There is pool of green stagnant
     water here with sheer cliffs   all around.The only
     exit is south "
1150 DATA0,4,0,0,0,0
1160 DATA"J"
1170DATA10,8,11,11,0,0:REM ROOM 9
1180DATA"J"
1190DATA12,8,9,11,0,0
1200DATA"J"
1210DATA10,8,12,9,0,0
1220DATA"J"
1230DATA13,0,10,9,0,0
1240DATA"J"
1250DATA9,10,8,14,0,0:REM ROOM 13
1260DATA"The jungle is thinning and I can see smoke rising
     abovethe trees to the northWest is a jungle path "
1270DATA15,0,13,0,0,0
1280DATA"The trees are spread out and I can see  a
    village of grass thatched mud huts west.It looks
    deserted.South is a path  into  the jungle "
1290DATA0,14,16,0,0,0
1300DATA"This is the centre of the village.Eastis the
    path into the jungle.There is a  lit fire here with
    stones around theedge All around are the mud huts."
1310DATA18,17,20,15,0,0
1320DATA"We are in a one of the huts."
1330DATA16,0,0,0,0,0
1340 DATA"This is obviously the chiefs hut.It is  large
     and has may animal skins on the   walls.There is a
     draft from above."
1350DATA0,16,0,0,19,0
1360 DATA"We are on the roof of the hut "
1370 DATA0,0,0,0,0,18
1380DATA"AAAAA OH NO" It s the witch doctors hut He has
     ... ... animal   teeth,claws and bones
     in the corner sitsthe man himself I think he is
     meditating"
1390DATA0,21,22,16,0,0
1400DATA"We are by a swiftly flowing stream that is
    within easy reach.There is a push button here "
1410DATA20,0,0,0,0,0
1420DATA"AHA! We are standing in the missionary shut
    A bamboo table is in one corner witha piece of paper
    stuck to it"
1430DATA0,0,0,20,0,0
1440DATA"We are in an underground tunnel.There
    isa locked door north
1450DATA0,0,0,0,7,0
1460DATA"YOU NOW WILL ENTER THE TREASURE
    CHAMBERSWHICH ARE HEAVILY GUARDED
    There are exits in all directions."
1470DATA25,23,27,26,0,0
1480DATA"This is the south side of the fire pit,
    a natural  ... fissure thedistance across is too
    far to jump The only exit is south."
1490DATA0,24,0,0,0,0
1500DATA"We are going along a round
    curving west east tunnel."
1510DATA0,0,24,25,0,0
1520DATA"We are going along a round curving
    east-west tunnel "
1530DATA0,0,25,24,0,0
1540DATA"M"
1550DATA32,35,34,29,0,0
1560DATA"M"
1570DATA37,37,28,30,0,0
1580DATA"M"
1590DATA29,29,32,36,0,0
1600DATA"M"
1610DATA28,33,30,29,0,0
1620DATA"M"
1630DATA31,0,31,35,0,0
1640DATA"M"
1650DATA0,34,24,32,0,0
1660DATA"M"
1670DATA0,0,33,35,0,0
1680DATA"M"
1690DATA33,0,31,37,0,0
1700DATA"M"
1710DATA37,0,0,0,0,0
1720DATA"An amazing purple rock grows out of the floor.
     There are exits east and west."
1730DATA0,0,28,36,0,0
1740DATA"M"
1750DATA37,32,35,30,0,0
1760DATA"HOOray HOOray! We are in the treasure   vault.
     The chest is in the corner full   of valuable treasure!
     You must now make it back to the ship!"
1770DATA0,38,0,0,0,0
1780DATA0,38,0,0,0,0
```


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Open Forum

Open Forum is for you to publish your programs and ideas. Take care that the listings you send in are all bug-free. Your documentation should start with a general description of the program and what it does and then give some detail of how the program is constructed.

Catalogue

on BBC

This is a simple utility designed to run on the BBC with an Epson printer (It could easily be adapted for any printer.) The program is for those, like myself, who forget to keep careful notes on the contents of their many cassettes. The program allows a cassette cover to be produced using the DS *Cat command. To exit use <*Esc*> and a screen dump is performed. Tape loading errors are ignored, the error message is retained to indicate the appropriate problem file. If the number of files is greater than one screen, <*Esc*> before scroll and continue with *Cat.

Program notes

10-60 Initialise printer
80-220 Main loop, input of tape number side, *Cat, prompts to quit or continue
250-280 Error handling <esc> to quit *Cat tape errors continue, other start again.
300-430 Screen dump outer loop gives address of 1st byte of each newline inner loop gives offset, test to prevent printing of blank lines

Variables

tn$	Tape name
ts$	Tape side
ans$	Response
J	Address of 1st byte of newline
JJ	Byte offset
B	Ascii value of character to be printed

```
10REM
20REM    HARD COPY CASSETTE CATALOG
30REM
40REM    R BRIDGES 24-AUG-84
50REM
60ON ERROR GOTO 260
70VDU2,1,27,1,64,3
80REPEAT
90MODE7:VDU12
100INPUT"INPUT TAPE NUMBER "tn$
110INPUT"INPUT TAPE SIDE "ts$
120VDU12
130PRINT"TAPE NO."tn$;SPC(3);"SIDE ";ts$
140*CAT
150PROCscreen_dump
160VDU12
170PRINT"DO YOU WANT TO CONTINUE Y/N";ans$=GET$
180IF ans$="n" OR ans$="N" THEN END
190PRINT"CARRY ON WITH SAME SIDE Y/N";ans$=GET$
200IF ans$="y" OR ans$="Y" VDU12:GOTO140
210VDU2,1,10,3
220UNTIL FALSE
230REM
240REM     ERROR HANDLING
250REM
260IF ERR=17 GOTO150
270IF ERR>215 AND ERR<220 GOTO140
280GOTO90
290REM
300REM     SCREEN DUMP
310REM
320DEFPROCscreen_dump
330VDU2
340FORJ=&7C00 TO &7FE7 STEP 40
350FOR JJ=0TO37
360B=?(J+JJ)
370IF J>&7C80 AND JJ=0 AND B=32 GOTO420
380VDU1,B
390NEXT
400VDU1,10
410NEXT
420VDU3
430ENDPROC
```

Catalogue
by R Bridges

Microradio

GW6JJN

Program transmission

Commodore users will be interested in an interface just released from Zero Electronics of Great Yarmouth.

The *Com-in 64* enables the Commodore 64 to be used as a terminal for Baudot, Morse, Ascii and Slow Scan TV (SSTV) characters. It also boasts a built-in wordprocessor, RTTY, program transmission and modem facilities.

Message buffers can be stored from the screen to cassette or disc—the screen display itself is divided into a received text section and output section with a bar showing baud speed (45, 50, 75, 110 and 300 baud available) mode, current time, (a 24 hour clock is included), options selected, etc. Text can also be dumped to a printer.

The *Com-in 64* costs £125.00. Further details can be got from Zero Electronics, 149 Kingstreet (Nash House), Great Yarmouth NR30 2PA.

More news comes from Cirkit, the mail-order electronics suppliers formerly known as Ambit. Its new modem is priced at just £59.95 and will be marketed by Protek.

Cirkit says that the modem, the 1200, is four times smaller, three times faster, and a quarter of the price of its nearest rival. It has British Telecom approval for phone connection and can access Telecom Gold and Prestel.

Micro owners will be able to exchange data and programs over the telephone, and it will eventually send and receive electronic mail.

It will be compatible with any computer with an RS232 port and interface packs will be available for the BBC B, Electron, Spectrum, QL, Atmos, Amstrad, and MSX. Cirkit is currently planning a number of similar micro products, so watch this space.

The launch of cheaper communications equipment will probably be a coming trend, as it is becoming evident that people want to do more than play games with their micros.

Acorn's release of its *Viewdata* adaptor for the BBC at £112—a surprisingly reasonable price for Acorn—bears this out. The exit gives access to both Prestel and Telecom Gold. Still, the Cirkit 1200 will do all this at half the price.

Ray Berry GW6 JJN

This series of articles is designed for radio and microcomputer enthusiasts alike. If you have any queries that you want answered, hints and tips to share, or topics that you would like to see covered, write to Ray Berry, Microradio, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 3LD.

Open Forum

Tape Loader

on Oric

Many commercial programs display something on the screen whilst the program is loading. This program emulates this situation and is used as follows:

1. The screen program should be loaded into the computer.
2. Lines 2100 and 2120 should be customised the name of the main program and the author's name, respectively.
3. Save the screen program *Auto* and then stop the tape but *do not* rewind the tape.
4. Save the main program after loading it into the computer.

The program works by printing a screen and then loading the next program on the tape, which should be unnamed.

Variables

G1) General purpose numeric variables.
G2)
T$(1-6) Text strings.

```
"TAPE LOADING SCREEN"
By Barbara Prowse 1984


996 REM***************************
997 REM*  TAPE LOADING SCREEN    *
998 REM* BY BARBARA PROWSE 1984 *
999 REM***************************
1000 CLS:PAPER7:INK0:PRINTCHR$(17):FORG1=1TO4:PRINT:NEXT
1020 FORG1=1TO7:READT$(G1):NEXT
1040 DIML(17):FORG1=1TO17:READL(G1):NEXT
1060 FORG2=1TO17:G1=L(G2):GOSUB1500:NEXT
1100 CLOAD"":CLS:PRINTCHR$(17);:END
1500 IFG1=6THENPRINT" ";CHR$(4);CHR$(27);"D";CHR$(27);"J";:GOTO1540

1520 PRINT"  ";CHR$(27);"A";
1540 PRINTCHR$(27);"S";T$(G1);CHR$(27);"W";
1560 PRINT:IFG1=6THENPRINTCHR$(4)
1580 RETURN
2000 DATA"*******************************"
2020 DATA"*                             *"
2040 DATA"*   Software for ORIC 1 48k   *"
2060 DATA"*         is loading.         *"
2080 DATA"*   ......PLEASE WAIT......   *"
2100 DATA"* PROGRAM NAME (max 25 chars) *'
2120 DATA"*     by NAME (max 22 chars)  *"
2140 DATA1,2,3,2,1,2,6,2,7,2,4,2,1,2,5,2,1
```

Tape Loader
by Barbara Prowse

Arcade Avenue

Round the track

There's lots to squeeze in this week so let's get straight on with it. J Colthart of Tamworth has written in as a witness for his/her friend, one Simon Taylor, who has escaped *Bugaboo*'s cave in just 29 seconds — and they have photos to prove it. They think this is pretty unbeatable — but do you know better? Meanwhile Gary O'Conner of Buckley in Clwyd has scored 47,410 on *Ant Attack*. He used the system that we mentioned a few weeks ago of jumping over boundary walls on an ant's back (remembering that points are awarded for escaping as quickly as possible).

Gary Burrows of Liverpool has scored the following on some 'old but gold' Spectrum games: *Jet Pac* 128,260, *Pssst* 92,285 *Manic Miner* 250,000, *Zzoom* 266,900 *Arcadia* 32,832, on level 58 (which knocks spots off of my high score). Incidentally, Gary, thanks for the encouraging comments but you'll have to write to the editor if you want the Avenue enlarged.

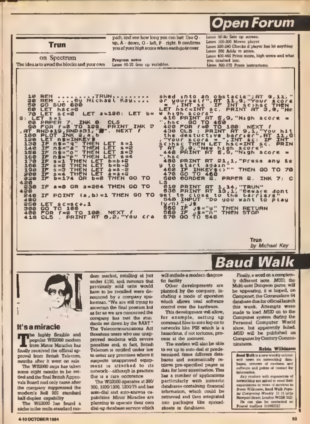
But out of this range of truly memorable scores I must confess to being most impressed by the achievement of B P Jay of Ipswich who writes "as far as I know I'm the first person to have finished first on all ten circuits of Micromega's fantastic new game *Full Throttle*. In a three hour battle on the evening of Wednesday 15th August I sweated my way to first place on each circuit and managed to stay there until I thankfully passed the chequered flag. All races were run on four circuits of the track. We were also offered a tip that "all you need is a bit of patience"!

Andrew Lang of Great Billing has completed *Atic Atac*, *Jet Set Willy* (by cheating), *Sabre Wulf*, *Trans Am* and *Antics* and has also sent us the following extra lives poke for *Hunchback*, which I, at least, will find extremely useful, *Poke* 24760,256 gives you 256 lives (Spectrum version only).

A letter has come from Martyn Henderson of Aberdeen who is desperate for suggestions on how to land the plane in *TTL*. "I have had the game for about a month now and am more and more impressed by the graphics. It might seem a ridiculous problem but I've tried landing every way I can think of but still can't manage it." Well, we did touch on this a few weeks ago but to recap briefly, you must fly from right to left over the airport using the shadow to line yourself up. As soon as you have passed the tree covered island you can use the altimeter to bring yourself down to almost ground level. Then, as you reach the runway, drop the last small bit and wait for the plane to stop.

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games. If you have any comments from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle, Arcade Avenue, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 3LD.



Trun

on Spectrum

The idea is to avoid the blocks and your own path, and see how long you can last. Use Q - up, A - down, O - left, P - right. It confirms you of your high score when each go is over.

Program notes

Lines 60-70 Sets up variables.
Lines 80-90 Sets up screen.
Lines 100-200 Moves player.
Lines 220-240 Checks if player has hit anything.
Lines 250 Adds to score.
Lines 400-440 Prints score, high score and what you crashed into.
Lines 600-670 Prints instructions.

```
  10 REM .........TRUN.........
  20 REM ....by Michael Kay....
  50 GO SUB 600
  60 LET hsc=0
  70 LET sc=0: LET a=128: LET b=
8: LET s=1
  80 PAPER 7: INK 0: CLS
  90 FOR f=0 TO 100: PRINT INK 2
,AT RND*19,RND*31,"█": NEXT f
 100 PLOT INK 8,a,b
 120 LET n$=INKEY$
 130 IF n$="q" THEN LET s=1
 140 IF n$="a" THEN LET s=2
 150 IF n$="o" THEN LET s=3
 160 IF n$="p" THEN LET s=4
 170 IF s=1 THEN LET b=b+2
 180 IF s=2 THEN LET b=b-2
 190 IF s=3 THEN LET a=a-2
 200 IF s=4 THEN LET a=a+2
 220 IF b=174 OR b=0 THEN GO TO
420
 230 IF a=0 OR a=254 THEN GO TO
420
 240 IF POINT (a,b)=1 THEN GO TO
400
 250 LET sc=sc+.1
 300 GO TO 100
 400 FOR f=0 TO 100: NEXT f
 410 CLS : PRINT AT 8,2;"You cra
shed into an obstacle";AT 9,11;"
or yourself",AT 11,9;"Your score
 = ",INT sc: IF INT sc>hsc THEN
LET hsc=INT sc: PRINT AT 3,0;"Ne
w high score"
 415 PRINT AT 5,9;"High score =
",hsc: GO TO 450
 420 FOR f=0 TO 100: NEXT f
 430 CLS : PRINT AT 9,1;"You hit
 the destuctive barrier",AT 11,9
;"Your score = ",INT sc: IF INT
sc>hsc THEN LET hsc=INT sc: PRIN
T AT 3,0;"New high score"
 440 PRINT AT 5,9;"High score =
",hsc
 450 PRINT AT 21,1;"Press any ke
y to start again"
 460 IF INKEY$<>"" THEN GO TO 70
 470 GO TO 460
 600 BORDER 2: PAPER 2: INK 7: C
LS
 610 PRINT AT 1,14;"TRUN"
 530 PRINT AT 13,1;"Beware dont
get to close to the barriers"
 540 INPUT "Do you want to play
(y/n)",j$
 550 IF j$="y" THEN RETURN
 560 IF j$="n" THEN STOP
 570 GO TO 540
```

Trun
by Michael Kay

Baud Walk

It's a miracle

The highly flexible and popular WS2000 modem from Minor Miracles has finally received the offical approval from British Telecom, months after it went on sale.

The WS2000 saga has taken some eight months to be settled and the final British Approvals Board nod only came after the company suppressed the modem's Bell 202 standard half-duplex capability.

The WS2000 has found a niche in the multi-standard modem market, retailing at just under £130, and rumours that previously sold units would have to be recalled were denounced by a company spokesman. "We are still trying to ascertain the final position but as far as we are concerned the company has met the standards set down by the BABT."

The Telecommunications Act threatens users who use unapproved modems with severe penalties and, in fact, British Telecom is entitled under law to enter any premises where it suspects unapproved equipment is attached to its network—although in practice this is a rare occurence.

The WS2000 operates at 300/300, 1200/1200, 1200/75 and has auto-dial and auto-answer capabilities. Minor Miracles are planning to operate their own dial-up database service which will include a modem diagnostic facility.

Other developments are planned by the company, including a mode of operation which allows total software control over the hardware.

This development will allow, for example, setting up command files to auto log-on to networks like PSS which is a hazardous, if not tortuous, process at the moment.

The modem will also be able to set up to auto-dial at predetermined times different databases and automatically retrieve pre-specified pages or data for later examination. This has a number of applications particularly with numeric databases-containing financial information, which could be retrieved and then integrated into packages like spreadsheets or databases.

Finally, a word on a completely different note. *MUD*, the Multi-user Dungeon game will be appearing, it is hoped, on Compunet, the Commodore 64 database due for official launch this week. Attempts were made to load *MUD* on to the Compunet system during the Personal Computer World show, but apparently failed. *MUD* will be published on Compunet by Century Communications.

Robin Wilkinson

Baud Walk is a new weekly column with news on networking databases, reviews of modems and software and points of contact for information.

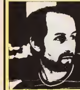
Any readers with experience of networking are asked to send their experiences or news of services to Robin Wilkinson, Baud Walk *Popular Computing Weekly* 12-13 Little Newport Street, London WC2H 3LD.

He can also be contacted on Prestel mailbox 019993757


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CLOAK OF DEATH
QUEST FOR ETERNITY
STAR FORCE SEVEN
MIND GAMES
Argus Press Software Group
Recommended viewing
Early Evening
6.40 pm Cloak of Death
Starring Ghosts Galore. Spine chilling, blood curdling, great gory graphics. Horror shock in the early evening. Avoid the rats and crazy dogs - you'll feel really good after this one!
Written by David Cockram
Special Effects Dr Zambezi
Directed Martin Edwards
Produced Argus Press Software
Available for Atari Spectrum and CBM 64
Mid-evening
9.00 pm Quest for Eternity
Starring The Overlords of the Universe
The candidate (you) have to get to the Chamber of Creation. It's a laugh a minute since it's 2000 light years away on the most horrible planet in the Universe and your starship doesn't work either!
Written by David Cockram
Directed Martin Edwards
Produced Argus Press Software
Available for Atari, Spectrum 48K, CBM 64
Midnight Movie
11.55 Star Force Seven
Starring The Zurgs.
After a desperate space battle only one fleet of heroes remain to prevent the invasion of earth. The future of humanity lies with you!
Written by Ian Soutar
Special Effects Ian Soutar
Directed Martin Edwards
Produced Argus Press Software
Available for BBC, Spectrum 48K
CBM 64
For mail order write with cheque/PO/card No to
Mind Games, Argus Press Software Group, No 1 Golden Square, London W1

Tony Bridge's Adventure Corner



Post nuclear

There have been many new re leases since I last looked at the new adventure pile Many of them have been written with the aid of *The Quill*, which, as most of you will know is Gilsoft's excellent adventure writing utility

Celyn Jones Software of Clwyd have released *The House* for the Spectrum 48K— as all these Quill'd adventures are It's a tale of a dead witch's will, which she has secreted in a lonely old house You live nearby, and so it is only natural that you go and search for it—but the last inhabitants of the house met with a rather unfortunate demise But that won't put you off, will it?

D C Jones, the author took some five weeks to complete the adventure and he has produced a pretty good one There are not many spelling or grammatical mistakes, and the colour is used well. As he admits, the action is a bit slow in the beginning, but soon hots up — there are a lot of objects, some mundane, like the old gardening gloves, and the spade, and others not so mundane, like the green farming liquid (what use is that going to be?) The first part of the adventure consists of a wander round the overgrown garden and every so often, you come up against the locked door of the dark, foreboding house Look behind you!

Not bad at all and to the person who completes it four sentences are revealed send these off to Celyn Jones, and you're in line for £100 Celyn Jones Software, 14-15 Borthyn, Ruthin, Clwyd LL15 1NU, £5 60

Alex Sharp, Brendon Kavanagh and David Shandley are the authors responsible for the next Quill'd adventure, which is *Merlin's Quest*. It's based on the legend of Merlin and young Arthur Pendragon, and follows that legend very closely The trio here studied many books in order to make things as authentic as possible, while ensuring that the adventure remains very playable The objective of *Merlin's Quest* is the Golden Harp which must, of course, be found (well, you can't have Golden Harps just left lying around, can you?) — or according to the second title page, to discover Excalibur

Very atmospheric (and educational) and great value at £6 00 SKS Software (alias Sharp, Kavanagh and Shandley) are currently looking for someone to market the game, and they are assured of a successful adventure — it's much, much better than many of the so-called "mega-adventures" which are flooding the market at the moment, and I thoroughly enjoyed playing it For now you can buy direct from SKS Software, Summerfield Farm, Nantwich Road, Broxton, Nr Chester CH3 9JH.

Dowsoft! (please note the exclamation mark, PJ — and here's a couple more for you!!) is the name under which the Dowling brothers write, again using *The Quill*. 19-year-old Ian writes the scenario, leaving Tim to bring his obvious talent to bear in converting it to the Spectrum. Their first release is *Adventure on the Planet Akma*, and puts you, the player, in a cell on the aforesaid planet. Your task is to break out (well, you've been there for two months, with nothing but a rat and a mound of old bones for company) then travel across the planet's surface and finally find the rebel force, the Letics

I didn't spot any spelling mistakes, though there are a few errant hyphens and the occasional odd layout, but there is a great deal of atmosphere in the long evocative location descriptions, and the adventure plays quite well. In fact, it would be an ideal introduction for the beginner — not too hard, but lots of intriguing puzzles (oh dear, and some maths problems, too) and very colourful. The scenario is particulary good, well above average, while retaining simplicity There are plenty of chances for combat too Dowsoft! 3 Hempland Drive Stocton Lane, Yorks YO3 0AY, £5 00

Now to the last Quill'd game this week (there'll be more, never fear!), *Survivor*, from Redwhite Software Written by Bob Purdy, it is a chilling tale of a post-nuclear nightmare If this sounds familiar to you, the scenario is superficially similar to that of *Ground Zero* the adventure from Artic. That was also Quill'd, though this fact is kept quiet by Artic — but what a difference! *Survivor* is a superb game from start to finish. The start is in your fallout shelter, where food supplies have run out.

Because this adventure is set in a post-nuclear landscape, it's only natural that things are not going to be normal — venturing outside, for a start, is not your average Sunday stroll. Before you leave your shelter, pick up the Geiger counter, this will come in handy in measuring the radiation left over from the Big Bang in each area. Some areas will be clean and harmless, while others have a high level, and thus will be dangerous to walk through The program will tell you how many Rems per turn your body can take — and these are not *Remarks*! Up to 200 Rems is OK, while over 200, and you start to become ill.

There are a lot of objects in fact, an embarrassment of them, you can only carry four, and there are at least six in the very first location that might well be useful — which ones to take, and which to leave behind? There is a rather simple puzzle at the very start to solve, giving you a word which may well come in handy later in the adventure, and this unusual aspect, along with the nightmarish atmosphere replete with rabid rats, other crazed survivors jumping out from shadowy doorways to stab you, combines with the colourful location descriptions to make an adventure well worth playing and highly recommended. It's £4 95 (p&p included) from Redwhite Software, 23 Thornhill Street, Canton, Cardiff CF5 1RD So, a bumper crop of Quill'd adventures this week.
there'll be plenty yet to come

Finally, I must just mention a couple of new adventure for the QL. I knew it wouldn't take long, and Talent Software, whose *West* adventure for the CBM64 I mentioned a couple of weeks ago, have released that game for the QL, along with a second, called *Zkul* I haven't seen it yet, but I believe that it leans heavily on elvish Magick and other D&D delights, and apparently it is for experienced adventurers only. One feature that seems especially "why-did nobody think-of-that-before?", is a "scratchpad" on which the player can jot down notes for later implementation.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair — help is at hand

Fill in the coupon, explaining your problem send it to us and a fellow adventurer may be able to help

Remember — the system only works if those adventurers who have solved the puzzles get in touch Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (micro) ....

Problem ....

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This series of articles is designed for novice and experienced Adventurers alike Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter So if you have an Adventure you want reviewed, or if you are stuck in an Adventure and cannot progress any further write to Tony Bridge Adventure Corner, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD



Basic workings

Srredts Slain of Antwerp, Belgium writes:

Q I have recently bought a Tandy TRS80 Colour computer. I have always assumed that the Tandy and the Dragon computer were exactly the same until I tried some of your programs. I couldn't get any of your Basic programs to run at all but the machine-code ones all worked perfectly. Can you explain why this is?

A What is the same between the two machines is the Basic and the general hardware arrangement. The Rom routines however are different. This should mean that Basic programs are completely compatible whilst machine-code programs may need some adaptation. I can only think you were lucky with the machine-code programs you have tried which just happened to use areas of machine-code that were the same.

Equally you must have been unlucky with the Basic programs because they used machine-code *Pokes* or *Peeks* that were not the same as those used in the Tandy.

A classic question

Mr A Morris of Kingshurst, Birmingham writes:

Q I own a 48K Spectrum and would like to know whether there is a *Poke* that disables the Break key from being used.

A This is one of the classic questions asked quite regularly in this and every other technical advice column in the computer press.

Can you completely protect your programs? No, is the simple answer. Can you disable the break key? Yes, up to a point. It involves playing about with the error stack pointer and making it point to a different place from usual so that your program just keeps running without an error being recorded by the system. This is the line you should use (note though that it may not work with Interface 1 attached) *Let* p=*Peek* 23613 + 256**Peek*23613 + 1. *Let* p=p−2. *Poke* 23613 + 1, *Int* (p/256) *Poke* 23613, p−256**Peek* (23613 + 1).

It's a bit drastic since it *News* the machine if you press *Break*; warn friends in advance!

Merits of each

Billy Lan of Spennymoor, Durham writes:

Q I own a BBC micro with disc drives and have been arguing with a friend who has a QL about the merits of each. Who is right on the following?

1) He claims the BBC is old-fashioned because it has masses of micro chips inside.

2) I think the QL's Basic is a mix of BBC and Spectrum Basics plus the odd extras. I believe the QL copied the idea of using functions, procedures, *If . . . Then . . . Else, Repeat . . . Until* from the BBC but he says these commands are standard and the BBC wasn't the first to use them.

3) He claims the QL is a much more powerful and faster computer altogether and is only beaten by the BBC's sound and keyboard. Please can you prove him wrong.

A Comparing—judging—two computers on these terms is not easy, still I'll try to have some sort of stab at your specific points.

1) It is true that the current chip layout on the BBC probably does reflect when it was designed and it wouldn't be the way it would be designed now. Micros these days are designed—like the Electron—with bigger and bigger ULA chips, to reduce the chip count on the circuit board and so reduce the manufacturing cost.

2) Your friend is right I'm afraid—procedures, etc, go back a lot further than the BBC. Although there are a number of features of BBC Basic which represented the first implementation of these commands on a home micro.

3) What do you mean by powerful? The QL has a lot more—that's for sure and the multi-tasking and window facilities are very sophisticated if you can get at them. But QL Basic is not faster than the BBC.

Speak and spell

David Richardson of Treskilling, Cornwall writes:

Q I have a BBC computer and we were going to buy a speech synthesiser but since my sister has a 'speak and spell' toy, I was wondering if we could link it up to the computer and use that instead. Could we do this and how much would it cost?

A The answer is almost certainly yes you could do it, but unless you have a good knowledge of electronics it probably wouldn't be worth the trouble you'd have to go to.

I don't know what speech chip the 'speak and spell' uses but it is quite likely to be the Texas one—it is used by most of the computer speech units. However, it is far from straightforward. You would need to remove the chip and build the appropriate circuitry to connect it to the BBC and then you'd have to write some fairly complex software.

Teaching programs

Mr B P King of Bream in Gloucestershire, writes:

Q I am considering purchasing the Acorn Electron but I am concerned about the availability of software—especially educational software as I have children of five and ten years.

What percentage of BBC software is compatible with the Electron, particularly on the educational side?

A The Electron and the BBC are fully (well nearly) compatible in terms of Basic although the Electron runs considerably more slowly.

What this means in practice is that BBC programs written in Basic which do not especially require speed can be used happily on the Electron. Although some BBC educational programs fall into this category, most good ones, usually requiring at least some machine code, do not.

You are reliant, therefore, on software written especially for the machine. There is some good material but, unlike the BBC which has a special reputation in this area, there is no more than other micros like the Spectrum.

A strong dilemma

Steven Rigby of Watford Herts, writes:

Q Could you please help me? I am trying to decide on buying one of the following things. The first is to expand my Spectrum with, probably, a microdrive, a Stonechip keyboard and a Currah speech unit. The alternative is an Acorn Electron—keeping the Spectrum at the same time. Please help me decide.

A A strong dilemma! I can't really answer your questioning because I don't know what your reasoning is. I must say that unless you have some special reason for getting the Electron—BBC Basic at school for example—I can't really see that you need it. Spectrum software is certainly better, by and large, than Electron software and with a proper keyboard which you say you are thinking of getting, can be turned into a very useful word processor with *Tasword Two*

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48K SPECTRUM, 2 months old, with brand new cassette case and lots of software. Hardly used. Complete with some magazines and all accessories. Worth over £500. Sell for £200 (no offers). Paul Huxman, 49 Powis Street, Liverpool, L8 3TU. 051 727 7211

SPECTRUM SOFTWARE for sale titles inc. Sabre Wulf, Antics, Decathlon and many others. Very cheap. Send SAE for details to 50 Athol St, MBRO Cleveland TS1 4LB

SPECTRUM SOFTWARE for sale includes Valhalla, Hulk and Match Point ed software worth £140 will sell for £45 ono. Will split. Tel Wendover (0296) 623423 after 4.30pm

WANTED SPECTRUM Waxworks and Ten Little Indians. Write Gray, 87H Tower Drive, Midton, Gourock, Inverclyde or phone Gourock 35817 evenings

SPECTRUM 48K Joystick + Kempston interface + books. Lots of software including and brand Mage Currah (Microspeech optional) computer 1 month old! (Guaranteed) sell for £120. Negotiable. Tel Michael 01 340 9630 (Archway/Highgate)

FOR SALE "Spectrumiser", Hi-res Basic compiler for ZX81. Brand new unwanted gift, cost £6.50 sell for £3.50. Philip Carlin, 8 Tithe Croft, Heath Town, Wolverhampton. All letters answered

48K SPECTRUM and Fox Programmable Interface and Quickshot joystick with 170 cassette programmes including Hobbit, Sabre Wulf, Quill, Full Throttle etc £250. 20 Gringley Road, Misterton, Doncaster. Tel 0427 890479

QUICKSHOT II joystick £8.50 and Stonechip programmable interface for Spectrum £17.50. Boxed as new, unwanted gifts. Tel Saffron Walden 27288

SWAP SINCLAIR 16K ZX81 and many games + mags for BBC printer with interface or Cheetah speech synth considered. Tel Eckington 433583 after 6pm or weekends any time

SPECTRUM 48K 2 months old £140 of software Hobbit, White Lightning, Quill etc. Kempston + 2 joysticks. All worth over £300, £280 ono cash. Slough 33982

SPECTRUM, Currah Speech + demo tape £20. Tel 0905 21571

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SPECTRUM S/W to swap: Monty Mole, Mr Wongs Loopy Laundry, The Pyramid, Sabre Wulf, Ward Lords of Midnight and any others — Phone Graham on 0238 21465 after 6 p.m.

SPECTRUM 48K + 115 games, Kempston Joystick + Interface worth £800, offers please or swap for Amstrad with colour monitor — Tel 01 950 6262, ask for Nicholas or Tel Garston 662305 (even.)

SPECTRUM SOFTWARE for sale 12 Top Titles inclusive 3D Lunar Attack, Astro 2, Blue Thunder, Hunchback, Trans AM, Alchemist. Retail price £76, will sell for £25 — Tel 01-658 9864 (evens)

SPECTRUM 48K Alphacom printer, Tape Recorder, Amplifier switch unit, carry case work station, word processor, database, many books £250 — Tyne and Wear (0632) 574795

I HAVE SOFTWARE (originals) to swap including Jumping Jack, Armageddon, Spookyman, Meteor Storm, Destroyer and Star Trek etc. Please send your list of swaps to Ian Canell, 4 Trimbrake Avenue, Hartlepool TS25 5JN

SPECTRUM Swap Currah Microspeech, DK Tronics light pen, Joystick & Interface, Scrabble, Melbourne Draw, Paintbox, Atic Atac, for ZX interface & ZX microdrive with cartridge

EXCHANGE MY SPECTRUM 48K and software for CBM 1541 Disk drive (any disk based software also appreciated) — Phone Andy on 051430 7808 (Drive must be in perfect condition)

WANTED Adventures for Spectrum, Phipps, Level 9 or Digital Fantasia or Scott Adams. Must include original packaging, instructions etc. Also want microdrive + interface one. Reasonable price paid — Tel 534-2261 after 5 p.m.

SWAP Valhalla, Hurg, Pyramid, Eye of Star Warrior (Spectrum 48K) for programmable interface — St Helens 54481

SPECTRUM SOFTWARE for sale Zip zap, Arcadia, Jetpac £3, Planet of Death, Terror Daktil 4D £3.50, Black Crystal £4 or the lot for £16. Tel Birmingham 421 3410

SPECTRUM SOFTWARE sold: Golf £3, Cricket Captain £2.50, Tyrant of Athens £2, Della £2.50, Eye of a Star Warrior £2.50, more — Jeff, 26 Henry Price House, Oldbury, Warley B69 1ED

48K SPECTRUM (Issue B) with manuals and magazines, Ferguson tape recorder and Kempston Joystick included in £130 worth of original software, £156 ono — Tel Radlett 7318 after 4 p.m. ask for Paul

FOR SALE "Spectrumber" Hi-Res Basic compiler cassette for ZX81 brand new, unwanted gift, cost £6.50, sell for £3.50 — Philip Carlin, 8 Tithe Croft, Heathtown, Wolverhampton. All letters answered

48K SPECTRUM. £130 of original software + Quickshot Joystick + interface + Currah Speech. All leads, manuals, magazines + books worth £52, altogether worth £390. Sell £210 ono, will pay postage — Tel Robin (0528) 812334 after 5 p.m.

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WANTED any ultimate, imagine and Quicksilver software for Sinclair Spectrum, must be originals and in good condition — Write to P Hainge, 8 Villa Street, Newtown, Birmingham B19 2XR

WANTED I need the ZX printer manual. Please contact Daniel Morrisey at 1A Ashcombe Road, Weston super Mare, Avon BS23 3DS or phone 0934 31449 and ask for Daniel Morrisey

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BBC SOFTWARE — Chuckie Egg, Dand, Howzat, Horror Castle, Shrinking Professor — £6.00 each ono. Send no money yet. Write giving name, address + phone to Keith Hazell, Flat 20, 30 Granada Road, Southsea, Portsmouth PO4 0RH

BBC DOUBLE DENSITY disc interface kit by Lol. As new £75.00. Tel 0272 877789

BBC GAMES SOFTWARE new, unwanted, will sell for half price the following: Starship Command, Blinsters, Vortex, Overdrive, Gorph, Snowball. Telephone 0245 50432 to enquire on price or reserve

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ACORN ELECTRON £140, OKI Microline 80 printer £100, signpoint printer interface £30, Cassette player, software, books etc. Tel Oxford 770790

BBC B RH Light pen with software and manual worth £45. Will sell for £20 or swap for speech chip or quickshot joystick with programmable interface. Phone Bromsgrove for Adam 0527 73034

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BBC B 1 2 O S V G C books leads manuals + s/w £325 BBC B with disc interface as new boxed manual + leads £400 Tel 01 989 8449

BBC B 1 2 O S Acorn DFS TEAC 40 track disk drive Wordwise, sidman, + £60 s/w £475 ono Tel 01 626 1567 (ex. 2292) Phil

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DRAGON 32, w £500 s/w + mags + j/sticks (slightly faulty) £180-£180 Tel 041 942 3752

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VIC 20 C2N 16K switchable ram Intro to Basic 1 and 2, Joystick Mags and Books all boxed and over 120 games £170 and Tel Derek 950 0885 after 5 p m

CBM 64 tape to disk transfer service Phone 01-940 7627 after 6 p m for details or write P 1 Services 46 Sheen Park Richmond Surrey TW9 1UW (Enclose s.a.e) Thank You

CBM 64 software for sale. All the latest games including Valhalla, Loco Beachhead, Encounter etc. All original. Write to Graeme Mort, 34 Knock Way Gallowhill, Paisley Scotland

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32K VIC 20 + C2N + Joystick + over £200 of original s/w + intro to Basic, Books and Mags £150 Tel Andy 01-841 0875 after 5 p m

COMMODORE 64 owner wishes to contact other 64 owners to swap programs and ideas Send your list of programs for exchange to Janftik Helgesen Joh Hjorts Vei 24 5030 Landas, Norway

COMMODORE 8K ram cartridge Vic 1110 Perfect working order and condition Also "Jetpac" game by ultimate Original condition Both for £20 or ask spirl (0244) 675717.

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Computer Swap entries are limited to 30 words. Either fill in the accompanying form and send to Computer Swap *Popular Computing Weekly* 12-13 Little Newport Street London WC2R 3LD or telephone 01-437 4343

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It cannot be swapped

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Name.....

Address.....

Telephone.....

ADVENTURE HELPLINE

Colossal Adventure on BBC B. How to get the lamp into the Plover Room? Also how to open the clam and get its pearl? Also, how to open the clam and get its pearl? The Moll, 116 Millhouses Lane, Sheffield S7 2HD

Greedy Gulch on Spectrum. How to find ammunition for the gun? How to get past the rattlesnake? Mrs V Lawless, 16 Culross Avenue, Manchester M10 0SR.

Hitch Hikers Guide on Spectrum. How do you get past the Tiger in the museum? Also what do I do when I have been ejected out of the Vogon spaceship? S Allen, 42 Lansdowne Cres, Stanwix, Carlisle, Cumbria CA3 9EW

Pirate Cove on Vic 20. How do I get past the crocodiles in the pit which is in the cave? Gary Baker, Kirkland Cottage, Stranraer, Scotland.

Hobbit on Spectrum. I cannot get out of the Elven Kings wine cellar, nor out of the Goblins Dungeon. Stephen Sedlen, 97 Maisemore, Yate, nr Bristol BS4 14UW

Adventureland on Vic 20. How to get past the Lava Stream? How to get the honey? Paul Williams, 1 Llindir Street, Hellan, Denbigh, Clwyd.

Espionage Island on Spectrum. How do I get past the swamp which is sinking? I keep sinking up to my neck. Chris Kissack, 30 High View

Hobbit on Spectrum. How do I escape from the Goblin's Dungeon and the King's Wine Cellar. Alan Sayles, 6 Measowbank Street, Dumbarton, Strathclyde

Voodoo castle on BBC. What enables me to become small enough to enter the crack at the bottom of the chute? John May, 44 Ruskin Road, Chadwell-St Mary, Grays, Essex.

Ultimate Adventure on Dragon. One is supposed to buy articles from a market to help with the adventure. Every time I try the computer replies 'Can only be bought in the market' when I am already in the market. Mrs P Griffiths, 29 Trent Road, Billinge, Near Wigan, Gtr Manchester

Goblin Towers on Commodore 64. I am lost in the forest. I cannot seem to progress in any direction. I am new to adventures. Janet Foster, 24 Moresby Avenue, Normoss, Blackpool.

Pirate's Cove on Vic20. On pirate island, in the cave maze, how do I feed and get past the crocodiles? Bryan Gault, 5 Sherwood Drive, Brant Road, Lincoln.

Smuggler's Cove on Spectrum. I can't get into the trapdoor and when I go past it I come to a barrier which I cannot get past. Jon Fraser, St Martha's, 6 Ramsey, Isle of Man.

Voodoo Castle on Vic20. How do you open the Ju Ju bag? How do you get out of the jail cell and who is (in the adventure) your friend? Julian Foley, The Anchorage, Back of the Hill, Annan, Dumfriesshire.

Urban Upstart on Spectrum. I am unable to get past the fan or the airport officer sargent, even after offering them all. Christopher Raiser, 2 Mill Hill Road, Hinkley, Leicestershire

Snowball on Commodore 64. How do I get through the security door? What is the combination? Howard Seymour, Welwyn Garden, Herts

Hobbit on 64. How do I get out of the Goblin's Dungeon? How do I kill the dragon? Gregory Neilson, 66 Herbert Avenue, Parkstone, Poole, Dorset.

SEE
INTERNATIONAL ADVENTURE CLUB (CLASSIFIED)

Diary

Event	Dates	Venue	Admission	Organisers
UK Fair	Oct 6 10.00am-5.00pm	Pudsey Civic Centre Pudsey W Yorks	75p adults 50p children	Northern Promoted Exhibitions 0532 [illegible]
Livingston Computer Fayre	Oct 6-7 10.00am-5.00pm	[illegible] Ladywell Livingston W Lothian	£1.00 [illegible]	[illegible] W Lothian Computer club
Computer Graphics 84 (over 18s only)	Oct 9, 10 10.00am-6.00pm Oct 11 10.00am-4.00pm	Wembley Conference Centre	Free in advance £5.00 on door	Online Conferences 01-868 [illegible]
Apricot and Sirius Show [illegible]	Oct 16-18 10.00am-6.00pm	New Century Hall New Century Street Corporation Street Manchester	Free in advance [illegible] organisers	16 Bit Computing [illegible] 01-341 2284
Computer Games and Systems Retailer Show (trade only)	Oct 17 18 9.00am-5.30pm	Novotel London W6	Free	Shows Exhibitions [illegible]
Sinclair Computer Education and Action Fair	Oct 20 10.00am-6.00pm Oct 21 10.00am-6.00pm	Luton College of Higher Education	£1.50 adults £1.00 children	Shaw and Kilburn 0582 [illegible]
Electron and BBC Micro User Show Oct 25-27 10.00am-6.00pm Oct 28 10.00am-5.00pm	Alexandra Palace London N22	£3.00 adults £2.00 children	Database Publications 061-456 8383	
Street Tech 84 Oct 26-30 10.00am-[illegible]pm	Bristol Exhibition Centre	£3.00 adults £1.00 children	[illegible] Exhibitions 0272 [illegible]	
Computers in Action	Oct 30 10.00am-6.00pm Oct 31 10.00am-6.00pm Nov 1 10.00am-6.00pm	Anderson Centre Glasgow	Free	Trade Exhibitions 041 [illegible]
Mycomp (Thames Valley Personal Computer Exhibition)	Nov 1-3 10.00am-6.00pm Nov 4 11.00am-6.00pm	Fulcrum Centre Slough	£2.50 adults £1.50 children	[illegible] Special Events [illegible]



Top 10

Spectrum
1 (7) Match Point (Psion)
2 (2) Full Throttle (Micromega)
3 (3) Tornado Low Level (Vortex)
4 (8) Cavelon (Ocean)
5 (6) Sabre Wulf (Ultimate)
6 (-) Jack and the Beanstalk (Thor)
7 (1) Daley Thompson's Decathlon (Ocean)
8 (6) Pyjamarama (Bug Byte)
9 (-) American Football (Digital Integration)
10 (5) Fighter Pilot (Digital Integration)

(Figures compiled by W H Smith and Son, London)

Electron
1 (1) Up Periscope! (Beyond)
2 (2) Ring of Darkness (Wintersoft)
3 (3) Cuthbert in the Mines (Microdeal)
4 (5) Nightball (Microdeal)
5 (8) Dungeon Raid (Microdeal)
6 (6) Mr Dig (Microdeal)
7 (9) Stomach Evil (Microdeal)
8 (-) The King (Microdeal)
9 (-) Hungry Horace (Melbourne House)
10 (-) Cuthbert in Space (Microdeal)

(Figures compiled by Boots/Websters)

BBC B
1 (-) Elite (Acornsoft)
2 (1) Frenzer (Pace)
3 (-) Overdrive (Superior)
4 (8) Micro Olympics (Database)
5 (9) Wallaby (Superior)
6 (8) Classic (Micro Power)
7 (6) Aviator (Acornsoft)
8 (7) Jonagel and Crab (Superior)
9 (10) Stock Car (Micro Power)
10 (4) Spitfire Command (Superior)

(Figures compiled by W H Smith and Son, London)

Vic 20
1 (3) Snooker (Visions)
2 (5) Sub Raid (Mastertronic)
3 (2) Flight 015 (Craig Communications)
4 (-) Max (Anirog)
5 (6) Duck Shoot (Mastertronic)
6 (2) Tower of Evil (Thorn EMI)
7 (8) Crazy Kong (Interceptor)
8 (-) Vegas Jackpot (Mastertronic)
9 (10) 3D Shoot (Mastertronic)
10 (7) Phantom Attack (Mastertronic)

(Figures compiled by Boots/Websters)

Atari
1 (-) Solo Flight (Centresoft)
2 (-) Caverns of Khafka (Centresoft)
3 (7) Zaxxon (Centresoft)
(-) Ore Attack (Atari)
5 (-) Carnival Champion (Atari)
(-) Loggit (Imagine)
7 (-) Slinky (Centresoft)
(-) Captain Sticky's Gold (English Software)
9 (-) Computer War (Atari)
10 (9) Colony 7 (System 3)

(Figures compiled by Boots/Websters)

Commodore 64
1 (1) Scrabble (Leisure Genius)
2 (3) Beachhead (US Gold)
3 (6) Decathlon (Ocean)
4 (4) Arabian Nights (Interceptor)
5 (-) Football Manager (Addictive)
6 (7) Decathlon (Activision)
7 (8) Galaga's Gold (Ocean)
8 (-) Sam Bike (Ocean)
9 (-) Space Walk (Mastertronic)

(Figures compiled by Boots/Websters)

ZX81
1 (1) Alien Raid (CRL)
2 (2) Walk the Plank (Novus)
3 (-) Black Crystal (Mastertronic)
4 (6) Flight Simulation (Psion)
5 (3) Krazy Kong (PSS)
6 (5) Planet Raider (Novus)
7 (7) Espionage Mines (Psion)
8 (9) Krypton Ordeal (Novus)
9 (4) Meteor Storm (DK'Tronics)
10 (8) Meteoroids (DK'Tronics)

(Figures compiled by Boots/Websters)

Books
1 (3) A Guide to Playing the Hobbit (Melbourne House)
2 (7) Brain Games (Usborne)
3 (9) Space Games (Usborne)
4 (-) Commodore 64 Games Book (Melbourne House)
5 (8) Practical Spectrum Machine Code (Shiva)
6 (4) Spectrum Code Sprites and Graphics (Sunshine)
7 (10) Computer Programming for Beginners (Fontana)
8 (9) 100 Programs for the BBC Micro (Prentice-Hall)
9 (-) Spectrum Book of Games (Granada)
10 (-) Adventures in BBC Basic (John Wiley)

(Figures compiled by Boots/Websters)

Book Ends

NETWORKING

As the festive season draws nearer, the books get bigger — the particular offering in front of me being *The Complete Spectrum*.

To its credit, the book does (for once) live up to the title. There is everything here, from wiring up the plug and extensive instructions on which end of the TV cable to put into the telly, to the elements of machine code programming and microchip architecture.

Not bad for 487 pages. There are also useful sections on add-ons, networking, adventure programming and more.

However, beware. Much of the material has been previously published in other guises by Ian Sinclair *et al*, so be careful to read the list of books on the inside cover.

All in all, though, if you are buying a Spectrum and want to know the ropes, there are definitely worse ways of spending ten quid.

Book	*The Complete Spectrum*
Price	*£9.95*
Micro	*Spectrum*
Supplier	*Granada Publishing, Grafton St, London W1*

ANNOTATED

A book useful for experienced Basic programmers ready to move on is *Advanced Basic and Machine Code for the Commodore 64* by the ubiquitous Peter Gerrard.

The book begins with advanced Basic programming techniques such as file searches and data storage before moving into machine code with a simple sprite moving program discussing Basic instructions, flags and such like.

There are a number of useful machine code routines that can be incorporated within your own programs which are well annotated to show exactly what's going on.

A book better than many of the type, a useful and clear set of appendices on machine code instructions are included as well.

Book	*Advanced Basic and Machine Code for the Commodore 64*
Price	*£6.95*
Micro	*Commodore 64*
Supplier	*Duckworth, The Old Piano Factory, 43 Gloucester Crescent, London NW1*

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
Frogman	Arc	Ace	£9.95	Mountsoft
Moneybags	Arc	Ace	£8.95	Mountsoft
Dragon	Ed	Amstrad	£4.00	Terry Soft
Potluck	Ed	Amstrad	£4.00	Terry Soft
Pontoon	S	Amstrad	£4.00	Terry Soft
Amstrad Assembler	Ut	Amstrad	8.95	Mountsoft
Matchmaker	Ut	Amstrad	£6.00	Terry Soft
Runemagic — The Wizards	Ad	BBC	£6.95	Triffid
Runemagic — The Secret River	Ad	BBC	£8.00	Triffid
Microgo 1	S	BBC	£9.95	Edge
Text Ed	Ut	BBC	2.25	Js
Pettigrew Chronicles	Ad	Commodore 64	£6.95	Shards
The Armour	Ad	Commodore 64	2.95	EFC
Ad Infinitum	Arc	Commodore 64	£7.90	Mr Chip
Kikstart	Arc	Commodore 64	7.90	Mr Chip
Games Creator	Ut	Commodore 64	12.95	Mirrorsoft
Supabasic	Ut	Commodore 64	9.95	Interceptor
Ace High	Arc	Dragon	6.95	Tudor Williams
Kentilla	Ad	Spectrum	6.95	Micromega
Pettigrew Chronicles	Ad	Spectrum	9.95	Shards
Se-Kaa of Assiah	Ad	Spectrum	7.50	Mastertronic
Wrath of Magra	Ad	Spectrum	12.50	Mastertronic
All or Nothing	Arc	Spectrum	5.95	Abbex
B.M.X. Trials	Arc	Spectrum	6.95	Llamlan
Braxx Bluff	Arc	Spectrum	6.95	Micromega
Crossman	Arc	Spectrum	6.95	Js
Grave Doom	Arc	Spectrum	6.95	Llamlan
Poltergeist	Arc	Spectrum	£5.95	PSS
Runaway Train	Arc	Spectrum	6.95	Llamlan
Spider Attack	Arc	Spectrum	6.95	Llamlan
Super Mutt	Arc	Spectrum	5.95	Silver Soft
Battlecars	S	Spectrum	7.95	Games Workshop
D Day	S	Spectrum	7.95	Games Workshop
Financial Manager	Ut	Spectrum	£3.95	Js
Music Master	Ut	Spectrum	£17.95	Supersoft

Key Ad — adventure/Arc — arcade/Ed — education/ S — strategy-simulation/Ut — utility

This Week is a new section that covers all the new software coming on to the home micro market each week. All suppliers should send details of their new programs to This Week, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 3LD

New Releases

A MORAL?

The Key to Time is an adventure from a new Spectrum software house which calls itself Lumpsoft!

It seems from a quick play to be a well planned adventure with a wide vocabulary, some wit, and some original ideas

There are, however, two big problems with it. Firstly it appears to have been written with *The Quill* but it is not credited. Bad.

Secondly, the entire adventure is constructed around characters, ideas, and plots from *Dr Who* This is also bad.

The mere fact that Lumpsoft are (presumably) a small software house and have in other respects tried hard with the adventure does not excuse the fact that many of the ideas are not their own.

I guess the BBC will fight their own battles though, and in other respects this is a fun program with much to recommend it.

Will you let the morality of property rights sway you?

Program	*The Key to Time*
Price	*£8.95*
Micro	*Spectrum*
Supplier	*Lumpsoft* *17 Hardrow Road* *Leeds LS12 4SX*

PROFESSIONAL

Kensington was, and for all I know, is, one of the most successful board games of recent times.

Without repeating the rules in their entirety, the game involves the strategic placing of stones on a board that looks rather like an Islamic mosaic.

Leisure Genius is continuing in its production of computer versions of famous board games with a version of *Kensington* for the Commodore 64

Although simple in concept the game can demand careful strategic thought and consequently represents quite a challenge in programming — the version appears to play well, with, thankfully, faster response times than Leisure Genius' version of *Scrabble* for the 64

The screen displays the classic board and lets you choose from a variety of options including watching the computer play itself, to your simply playing against a friend using the TV screen as a board.

If you like Kensington then it's certainly fun to play against the computer and this is a very professionally-produced program.

I still don't think a TV screen is quite as aesthetically satisfying as a board, though.

Program	*Kensington*
Price	*£12.95*
Micro	*Commodore 64*
Supplier	*Leisure Genius* *3 Montagu Row* *London W1H 1DB*

Pick of the week

DESERTED CITY

It's nearly a year since *3D Ant Attack* was first issued to an unsuspecting public who were to be stunned at its amazing Escher-like qualities and 3D multi viewpoint graphics.

At last comes *Zombie Zombie* — more of the same but with some interesting new features For one thing, the bad dies are not those nightmarish ants but yukky squelchy zombies that turn red to attack you at unsuspected moments

Apart from the city as enigmatically deserted and mysterious as ever Antescher was, you have a helicopter to take you over long distances safely, a blaster to deter zombies and a choice of gender (By the way if you are a male who wouldn't ordinarily consider being the girl, for reasons of macho posturing disguised as sexual insecurity, take my advice — if you play the game as a girl you get better graphic effects)

You also get the chance to design your own city and save it to tape — a lot of fun to try out on your friends. But what, you ask, is the objective of the game? Well, this took me quite a while to figure out as there isn't anyone to rescue and the instructions aren't telling However I'm prepared to give you a hint — the music played is *Ten Green Bottles* and the zombies are green as well . well then ... brilliant Holmes

Program	*Zombie Zombie*
Price	*£8.95*
Micro	*Spectrum*
Supplier	*Quicksilva* *PO Box 6* *Wimborne* *Dorset* *BH18 7PY*

DECISIONS

Of Triptych software much has been heard but little seen until now

Most of the Triptych releases have something interesting about them but *Decision Maker* got my vote as being the most unusual.

Easier to use than explain, it employs modern techniques of decision analysis to help you come to a conclusion about anything you are trying to decide upon — from whether to buy a compact disc player to whether to ask the person in the corner drinking brandy alexanders to come and boogie on the dance floor

Obviously, it's intended for rather more serious purposes where the possible advantages are more clearly known.

Analysing the factors involved in the decision provides to be a fairly complex affair, and, as with all Triptych tapes, a teaching tape is provided that shows you how to get the most from the program and use it properly

In fact the teaching tape and the manual give you a pretty fair education in the analysis of risks and probabilities that is valuable in itself, quite apart from the program tape that actually lets you use this information in a practical way

The program is well written with no obvious blunders in error trapping so even novice computer users should find it easy to use In many ways it has succeeded in an area that few other programs have even attempted — using the computer to educate adults

Program	*Decision Maker*
Price	*£15*
Micro	*Spectrum*
Supplier	*Triptych* *Sterling House* *Station Road* *Gerrards Cross* *Bucks SL9 8EL*

MASTER KEY

Psytrax is more than just a multi-screen game — It's beyond even a mega screen game with 1000 screens, which should ensure it takes ages and ages to see everything there is

The game involves moving a 'microdroid' around inside a computer looking for a number of master key cards that gradually open up the routes to the CPU

The game is all done with slick sprite graphics and looks good — whilst it's basically a reaction game there are strategic elements as some objects have specific uses which have to be discovered by experiment

The 1000 screens may be a little misleading though — all the screens have a similar layout and look. If you like

zapping things you won't go wrong here

Program *Psytraxx*
Price *£6.95*
Micro *Spectrum*
Supplier *The Edge, 31 Maiden Lane, Covent Garden, London WC2*

DODGY NEWS

Despite being written in Basic, *Velnor's Lair* won quite a few friends for its deviousness and imagination. Now the author of that program has produced a new adventure which loosely continues the plot of *Velnor*. The program is *Kentilla* and aside from being in machine code it adds to *Velnor* in the form of graphics and interaction with other characters.

Before the program the plot — well, a bit of it. Grako wants to turn Caraland into a torture playground, despite the wishes of the locals who felt this would be a pretty naff idea. To the rescue comes whimo wizard Ashka who sends Grako on his bike to the abyss (just take the A437 from Rhyl)

Anyway Velnor, who was a bit miffed at his defeat at the end of *Velnor's Lair* finds Grako's tomes (spells, etc) which give him power beyond even *Dynasty's* Blake Carrington. It all turns out to be Grako's plan, Velnor does himself a mischief when he tries to use the spells and is duffed up by Tylon, and Grako manages to escape, complete with the Moonstone of Algrath, which makes him even worse than before. The citizens of Caraland reckon this is a bit of very dodgy news.

The adventure understands fairly sophisticated sentences and the graphics though small, are neatly drawn and appear instantaneously. The ingeniousness which characterised Velnor is here too.

The use of different colours for the different sections of text is also a good idea. Plenty of atmosphere and a lot of fun.

Program *Kentilla*
Price *£6.95*
Micro *Spectrum*
Supplier *Micromega, 230-236 Lavender Hill, London SW11 1LE*

MEDIUM LEVEL

The Legacy is a text adventure for the Spectrum which has the prime virtue of not featuring a single elf, troll, fire-breathing dragon or mystic crystal sphere.

The Legacy has, instead, halls, dining rooms, taxis, and library. Also a mysterious activity involving hats. Not only these, but it comes complete with a pub in which you can drink (at a cost of some points).

The Legacy is intended to be an adventure of the medium level — it'll need a little thought and perhaps a bit of previous experience with adventures but shouldn't involve several months thought over each question.

Program *The Legacy*
Price *£5.95*
Micro *Spectrum*
Supplier *Tansoft, 1 Golden Square, Hathern, Loughborough, Leics LE12 5HJU*

CODE WORD

The *Ket* trilogy is now complete with the release of *The Final Mission*. This final section looks the most difficult of all, and it will certainly have helped to have played the other two parts, as for one thing, you can load in your character as developed through the other sections if you have completed them.

For those not familiar with the *Ket* adventures they are characterised by being very vast and very difficult indeed although usually only using simple Verb-Noun instructions.

In *The Final Mission* you finally get to confront the evil Vran Verusbel if you can make your way through the five Gate Guardians alive. If you get to the end with this one, the special code word combined with the special code words of the previous two parts gives you a complete sentence and you get to win a video recorder.

Program *The Final Mission*
Price *£6.50*
Micro *Spectrum*
Supplier *Incentive Software, 54 London Street, Reading, RG1 4SQ*

IN DARKNESS

Out of the Shadows is an unusual adventure. It has the interesting idea that you have to explore a land — illustrated by an on screen map in which large sections are obscured by darkness. You have a torch which will light a certain area, but not where corners or buildings obscure the beam.

You must explore this world fighting various baddies and meeting people who may be of use to you, building up levels of character skill and searching various treasures.

Commands are mostly verb-noun but that doesn't limit the variety within the game. With the elements of magic, fighting stamina, knowing what to buy, when to fight and when to run away it should appeal to more traditional strategy adventurers. Cheap too.

Program *Out of the Shadows*
Price *£6.95*
Micro *Spectrum*
Supplier *Mizar Computing, 104 Bradwell Road, Bradville, Milton Keynes, MK13 7DH*

BUG BULLETS

Just before the poor old Vic 20 finally dies its long overdue death at the hands of the C16, it's worth noting that there are still odd pieces of software being produced. Not only that but some pretty good software too. Palace Software, best known for its *Evil Dead* epic, have produced two games, *Squish* and *Bricks*.

Squish is pretty well summed up by its name, no subtlety here. The simple idea is to squish as many bugs as possible by hitting them in the right way, avoid touching them at all at other times and beware the bug bullets.

There are 20 levels in all, in some of which the bugs are invisible, not bad for less than 5K.

Program *Squish*
Price *£5.95*
Micro *Vic20*
Supplier *Palace Software, 275 Pentonville Road, London N1 9NL*

Compiled by Grahem Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD

50 forward

What is the most natural way in which to express ideas in programming, and which is the most sensible?

Is it more natural to say 3+3, as in Basic or Pascal, is it more natural to say (SUM 23) as in LISP, or is it more natural to say 33+, as in Forth?

I will argue that Basic and Pascal are rather more unnatural than Forth in the way they perform operations.

The first style of adding two numbers given above is called *infix* notation, because the arithmetical operator (the plus in this case) is fixed in between the numbers, and this is the style we learn at school. This, in turn, is the reason why it seems the only way

The second style of presentation is called *prefix* notation, because the operator precedes the numbers on which it operates.

The second style of presentation is called *prefix* notation, because the operator precedes the numbers on which it operates.

The final style is known as *postfix*, because the nature of the operator is postponed until we know the value of the numbers.

What happens when the *infix* indoctrination is not present?

In a study of the teaching of children in schools using turtle graphics it was discovered that when the children were deciding about the movement of the turtle they often said aloud "50 forward"

In the programming language the children were using they had to change this instruction to *Forward 50* The children had to change from a postfix instruction in English to a prefix notation in the programming language where the postfix notation was far more natural.

Put yourself in the place of somebody drawing a square in turtle graphics, where first we decide how far to move (say, *Distance*), and then we turn through 90 degrees (either right or left) The sequence so far is

Distance units 90 Deg--rt

This line of program (in a mythical language) uses postfix notation, and is in perfect harmony with the way we think. We move so many units forward and turn so many degrees to the right.

To draw a square this sequence has to be performed four times

Distance units 90 Deg_rt 4 times.

The instructions from the beginning of the sequence, up to the number 4, are repeated that number of times. If there are other instructions before the repeated sequence, then we can use square brackets to delineate the limits of the repeated action. For example,

35 Deg--lt [Distance units 90 Deg rt] 4 times

that is, turn through 35 degrees left, and then draw the square

Suppose there is a special instruction to draw a square, where the instruction is already provided by the system, or we have written a procedure to do this To draw a square of side 100 we simply enter *100 Square*

and nothing could be easier

Now take the example "You have five sweets, then somebody gives you one more How many will you have?" Obviously we can code this in the mythical language as

5 1 More is

or equivalently *5 1 + Print*

It is clear that postfix notation is the logical notation to use because it matches thought processes, and allows these thought processes to be discussed, and it leads to greater efficiency on the computer because it is more logical.

Consider these three examples where a square is to be drawn with a side of (2+3)*(4-5):

Infix	*Inf.Square* (2+3)*(4−5)
Prefix	*Pref.Square Mult Add* 2 3 *Sub* 4 5
Postfix	2 3 *More* 4 5 *Less Multiply Pref.Square*

I prefer the first and third versions The first version is useful because that is the way conventional arithmetic work (but for no other reason) and the third version presents operators in the order in which we perform the tasks.

The prefix form contravenes the task ordering because the last operation to be performed is *Pref.Square*, yet it is the first instruction to be encountered.

In fact, when you look at the infix form—the form we are all taught in schools—that is pretty confused as well. With infix you have to remember the order of precedence of the operators.

Boris Allan

Hercules' problem

Puzzle No 127

Here is one of the lesser known of the Labours of Hercules. One thousand silver coins were laid out in a row one pace apart. Starting at a marker just one pace away from the first coin, Hercules was to run to each coin in turn, then bring it back to the marker before going back for the next coin. And so on until the final coin had been collected.

Now each coin bore a number from one to a thousand in accordance with its position in the row The significance of this Hercules learned at the start of the race

You see, in ancient mythology the numbers 7 and 13 were considered unlucky, and so any coin that bore a multiple of 7 or 13 was to be left and not collected. That is, he would pass on to the next coin. Similarly, any number that contained in it any of these digits — a seven, one or three — was also to be left.

How far did he run, in paces?

Solution to Puzzle no 123

As the zero is unaffected, it is clearly not present in either of the first two calculations shown, but the fact that there are nine different symbols displayed indicates that each of the other digits (one to nine) are used. As both products are the same, we have to find an instance where the products of two different single and two-digit numbers can result in a three-digit product — all digits being different.

```
10 FOR A = 2 TO 8 20 FOR B = 11 TO 99 30 LET C =
A * B 40 IF C < 100 THEN GOTO 180 50 FOR D = A
+ 1 TO 9 60 LET E = C/D 70 IF E < > INT (E) THEN
GOTO 160 80 LET Z = A*100000000 +
B*1000000 + C*1000 + D*100 + E 90 Z$ = STR$
(Z) 100 FOR N = 2 TO 8 110 FOR M = N+1 TO 10
120 IF MID$ (Z$, N, 1) = MID$ (Z$, M, 1) THEN GOTO
160 130 NEXT M 140 NEXT N 150 PRINT A; B; C; D; E
160 NEXT D 170 NEXT B 180 NEXT A
```

This allows two possible answers. 2 × 78 = 156 and 4 × 39 = 156 or 3 × 58 = 174 and 6 × 29 = 174 Comparison with the third equation shows that it is the second of these two that provides the answer

Winner of Puzzle 122

The winner is: Hugh Walker, Burnet Avenue, Burpham, Guildford, Surrey, who receives £10

Rules

If the puzzle prize can be sensibly solved using a computer, then the winner will have included a listing of the program used to find the correct answer The closing date for entries to Puzzle No 127 is October 19

The Hackers







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SCHOOLS OUT
OKAY? NOW.. HERE'S MINE...
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THE OFFICES OF AUTOMATA UK LTD.. ENTER LADY CLAIR SINCLIVE
HI HO! ANYONE IN?
KOFF KOFF - COME IN, CLAIR!
PIMAN! IS IT YOU? IT IS! WHY THE JOKE BEARD AND HAIRPIECE..AND THE PILLOWCASE TIED AROUND YOU...AND..HACK, HACK.. THOSE CIGARS?
OLD CHRISTIAN'S OUT, SO I'M SITTING IN FOR HIM..
YOU KNOW - TALKING TURKEY WITH THE CLIENTS (HAHA, DEREK, HOW'S THE MISSUS? OH - AH - THE POSTMAN, EH? TOO BAD - I'LL GET BACK TO YOU!) NO, THIS IS EASY!
DID HE ASK YOU TO SIT IN?
NO. KOFF. HE DOESN'T KNOW... BUT HE'S ALWAYS DRESSING UP AS ME, SO I'M NGOPH! NGOPH! GETTING MY OWN BACK!
OH, DO PUT OUT THOSE CIGARS - YOU'LL POLISH YOURSELF OFF!
ANYWAY, I'LL HAVE TO STOP BEING HIM NOW. HE WENT ON A SPONSORED RAMPAGE WHEN ONLY 2 WHOLESALERS PUT THEIR MONEY WHERE THEIR MOUTH IS, RE "DEUS".. AND HE'S DUE BACK SOON
OH, IT'LL CATCH ON WHEN THEY STOP REELING FROM THE SHOCK OF IT ALL!
WHAT NOW, MORE MAKE-UP!?
YEH.. I'VE GOT TO SEE TO MY BUSINESS IN THE TOWN
WHAT BUSINESS IN THE TOWN, O ZOOT-SUITED ONE?
FOLLOW ME AN' I'LL SHOW YOU
WHY ISN'T MORRIS TAKING US?
WOULDN'T DO WOULD IT?
USED CA
UNLESS YER INTERESTED IN PURCHASIN', LIDY
A SNIP!
BUCK
WILL THIS LEAD ANYWHERE? WILL CLAIR GET A REFUND FROM HER HAIRDRESSER? WILL I LOSE MY JOB? TUNE IN AGAIN!
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